

AN INQUIRY INTO THE EDUCATIONAL PROBLEMS OF THE
ADOLESCENT DEPENDENTS OF MILITARY PERSONNEL

Abstract of a Thesis

Presented to
the Faculty of Graduate Studies
The University of Manitoba

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
Andrew Kinloch Clark
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It was the hypothesis of the study that the high rate of mobility of Armed Forces personnel adversely affects the education of their adolescent dependents, as revealed by their relative age, mental ability, class discipline, extra-curricular activities, and social interaction. The dependent of high-school age was selected because the differences in provincial curricula were believed to be of greater import at the secondary level.

The study was carried out at a collegiate institute near a military base in Western Manitoba. The student population consisted of approximately equal numbers of civilian students and dependents of military personnel. The main sources of data for the study were collegiate records and a student questionnaire. The treatment of the findings relied heavily on statistical procedures. The chi-square test of significance was applied in most instances, with the .05 level of confidence as the rejection point for null hypotheses.

The mobility of military students was almost three times greater than that of civilian students in terms of previous schools attended. There was a significant positive correlation between mobility and academic achievement for

military male students, but no significant relationship was found between mobility and the variables of age, class discipline, extra-curricular activity and social interaction.

There was no appreciable age difference between military and civilian students. There was a significantly greater incidence of discipline problems, as defined in this study, among the male military students than among male civilian students.

On the whole the military students were superior in achievement; they made significantly more passing grades than civilian students in Grade IX and Grade XI and significantly more failing grades in Grade X, in which grade their scores seemed to be depressed by possible bias.

Military students reported a significantly greater number of educational problems than civilian students. There was no significant difference in the amount of extra-curricular activity of the two groups.

Each group made a significantly greater number of sociometric choices within their own group. For the military students the preference for their own group was inversely correlated with the length of time they had attended the collegiate. Sociograms of a Grade IX class and a Grade XII class showed a growth in complexity of the inter-relationships of the civilian students, whereas the relationships of the Grade XII military students were as unstructured as in the Grade IX class.

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TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND DEFINITIONS OF TERMS USED . . .	1
Introduction	1
Education in the Department of National	
Defence	1
Importance of the Study	7
The Problem	8
Delimitation of the Problem	8
Assumptions	9
Null Hypotheses	10
Testing of Hypothesis	13
Definitions of Terms Used	14
II. REVIEW OF THE LITERATURE	17
Introduction	17
Mobility	17
Magnitude and Nature of Mobility	17
Mobility and Education	23
Mobility and Military Dependents	32
Delinquency	35
Sociometric Choice	38
Curricula Variation in Canada	42
Conclusions	46

CHAPTER	PAGE
III. DESIGN OF THE STUDY	48
Introduction	48
Sources of Data	51
Collection of Data	52
Method of Analysis	55
Summary	58
IV. MOBILITY OF MILITARY AND CIVILIAN STUDENTS	60
Introduction	60
Null Hypotheses	61
Conclusions	65
V. MENTAL ABILITY, AGE, DELINQUENCY, AND ACHIEVEMENT .	
VARIABLES FROM SCHOOL RECORDS	67
Introduction	67
Null Hypotheses	67
Mental Ability	67
Age	67
Delinquency	67
Achievement	74
Grade IX	74
Grade X	78
Grade XI	81
Grade XII	83

CHAPTER	PAGE
Mobility and Achievement	85
Conclusions	91
VI. STUDENT PROBLEMS AND EXTRA-CURRICULAR ACTIVITIES.	93
Introduction	93
Null Hypotheses	94
Educational Problems	94
Extra-Curricular Activities	102
Conclusions	109
VII. SOCIOMETRIC CHOICES OF CIVILIAN AND MILITARY	
STUDENTS	111
Introduction	111
Null Hypotheses	112
General Sociometric Association	112
Sociometric Choice and Length of Attendance	115
Sociometric Choice and Mobility	120
Sociometric Choice - Intraclass	123
Conclusions	129
VIII. SUMMARY AND CONCLUSIONS	131
Summary	131
Conclusions	134
Implications of the Results	136
Further Research Required	138

CHAPTER	PAGE
BIBLIOGRAPHY	140
APPENDIX A. Original Data for Groups Studied	145
APPENDIX B. Relevant Sections of Air Force Adminis- trative Orders.	177
APPENDIX C. The Military Student Overseas	201
APPENDIX D. Collegiate Questionnaire	207
APPENDIX E. Letter to Collegiate Principal	208
APPENDIX F. Computation of Chi-Square Test of Signi- ficance	209

LIST OF TABLES

TABLE	PAGE
I. Dependents' Schools Operated by the Department of National Defence in Canada and Overseas, April 1964	4
II. Movement of Population Five Years Old and over, By Sex and Type of Movement between 1 June 1956 and 1 June 1961	19
III. Transiency of Grades Ten and Eleven Pass-Fail Groups in Mathematics as Measured by the Number of Communities Lived in	27
IV. Number of Children Transferred into Each Prov- ince, with Province of Origin, between 1 July 1962 and 30 June 1963	30
V. Composition of the Groups Studied, by Grade and Sex, in June 1964 and November 1964.	50
VI. Number of Schools Attended During Educational Career by Military and Civilian Students	61
VII. Number of Provinces in which School was Attended by Military and Civilian Students	63
VIII. Distribution of I.Q. for Military and Civilian Students	68
IX. Mean Age by Grade of Military and Civilian Groups	70

TABLE	PAGE
X. Age Distribution of Military and Civilian Groups	70
XI. Discipline Infractions of Military and Civilian Students	71
XII. Distribution of Discipline Cases in Military Group by Number of Schools Attended.	72
XIII. Distribution of Discipline Cases in Military Group by the Number of Provinces in Which School was Attended	73
XIV. Distribution of Grades for Departmental Tests in Grade IX Subjects	75
XV. Final Standing on Grade IX Subjects of Military and Civilian Students.	76
XVI. Relationships between Departmental Test Grades and Final Standing Grades for Military and Civilian Students in Grade IX	77
XVII. Distribution of Grades for Departmental Tests in Grade IX Subjects	78
XVIII. Term Test Results for Military and Civilian Grade X Students	79
XIX. Final Standing on Grade X Subjects of Military and Civilian Students.	80

TABLE	PAGE
XX. Results of Grade XI Departmental Examinations for Military and Civilian Students.	82
XXI. Percentage Pass Results for Military, Civilian and Province of Manitoba Students Based on June 1964 Grade XI Departmental Examina- tions	82
XXII. Results of Grade XII Departmental Examinations for Military and Civilian Students.	84
XXIII. Percentage Pass Results for Military, Civilian and Province of Manitoba Students Based on June 1964 Grade XII Departmental Examina- tions	85
XXIV. Relationship in Military Group between Acade- mic Achievement and Number of Schools Attended in Educational Career	86
XXV. Relationship between Academic Achievement and Number of Schools Attended by Military Males.	87
XXVI. Relationship between Academic Achievement and Number of Schools Attended by Military Females	87
XXVII. Relationship between Academic Achievement and Number of Provinces in which School Was Attended by Military Students	89

TABLE

PAGE

XXVIII.	Relationship between Academic Achievement and Number of Provinces in which School Was Attended by Military Males	90
XXIX.	Relationship between Academic Achievement and Number of Provinces in which School Was Attended by Military Females	90
XXX.	Factors Reported to Have Adverse Effect on the Education of Military and Civilian Students	95
XXXI.	Specific Factors Having an Unfavorable Effect on the Education of Military and Civilian Students, as Reported by the Students.	97
XXXII.	Extra-Curricular Activities Participated in by Military and Civilian Students	104
XXXIII.	Distribution of Extra-Curricular Activities of Males and Female Students	105
XXXIV.	Distribution of Extra-Curricular Activities for Military and Civilian Students by Grade. .	106
XXXV.	Extra-Curricular Activities of Students Who Were New to the Collegiate and Those Who Had Attended for at Least One Year	108
XXXVI.	Sociometric Choices of Military and Civilian Students	113

TABLE	PAGE
XXXVII. Sociometric Choices of Male and Female Students	114
XXXVIII. Sociometric Choices in Military Group for New Students and Students with One or More Years Attendance	115
XXXIX. Sociometric Choices in Civilian Group for New Students and Students with One or More Years Attendance	116
XL. Sociometric Choices Made by Military and Civilian Students by Grade	118
XLI. Sociometric Choice of Military Students by Number of Schools Attended	121
XLII. Sociometric Choice of Military Students by Number of Provinces in which School Attended .	122
XLIII. Summary of Null Hypotheses	133
XLIV. Size and Operating Costs of National Defence Schools in Canada and Overseas, 1963-1964. . .	203

LIST OF FIGURES

FIGURE	PAGE
1. Extent of Extra-Curricular Activity by Grade for Military and Civilian Students	107
2. Proportion of Choices Made in Own Group to Choices Made in Other Group for Military and Civilian Students	119
3. Sociogram of Grade IX Class	125
4. Sociogram of Grade XII Class	127

CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS USED

I. INTRODUCTION

A notable characteristic of service in the Canadian Armed Forces is the mobility of military personnel. In many cases the prospect of this mobility may well have been the deciding factor in the choice of a military career. However, for the majority of military personnel who are married with dependents, the possible harmful effects of this mobility on the education of their children should be considered. To provide a background for the study and an indication of the extent of the problem the educational provisions for the dependents of military personnel are described.

Education in the Department of National Defence

The Federal Government is responsible for the education of the dependents of military personnel residing on Crown Lands. The branch of government to which this responsibility has been delegated is the Department of National Defence.

Legal Authority. The Department of National Defence derives its authority to provide elementary and secondary

education from Order-in-Council P.C. 1959-7/1480, dated November 19, 1959. This authority is in turn delegated to the various branches of the Armed Forces of Canada. Detailed regulations concerning the education of dependents in the Royal Canadian Air Force are contained in Air Force Administrative Orders,¹ relevant extracts from these orders being included as Appendix B. The regulations for the Canadian Army and Royal Canadian Navy are essentially similar in content.

General Principles. Taxation on Crown Lands is not available to provide the costs of education. The Department of National Defence education system owes its existence to this basic fact. The municipal authority in whose territory the military personnel reside, but which derives no revenue from these residences, cannot support the cost of providing schools for the dependents of these military personnel.

Education for dependents is provided by the Department of National Defence in four different ways:²

¹ Department of National Defence, Air Force Administrative Orders, 54.00/03 and 54.00/04.

² Department of National Defence, Department of National Defence Educational Facilities, Report to Parliamentary Returns from Associate Defence Minister, (Ottawa, April 1964) p. 2.

1. By contributions under the Municipal Grants Act.
2. By payment of Non-Resident School Fees.
3. By means of Capital Assistance Agreements.
4. By building National Defence schools on Crown property.

Under the Municipal Grants Act, the Department of Finance contributes a sum in lieu of taxes annually to the Municipality in which a service establishment is located to cover the cost of the education of dependents.

Non-resident school fees are fees paid by the Department of National Defence to a civilian school board which can provide educational facilities not available at a Service establishment.

Under Capital Assistance Agreements, the Department of National Defence contributes to construction costs of schools built by civilian authorities. The contribution is on the basis of the percentage of the school capacity to be occupied by the military dependents. The Department also contributes to the operating costs on a per pupil basis.

The last method of building a school on Crown property is used only when no other way of providing school facilities is available. Such schools are established and operated under the relevant provincial regulations, the Department of

National Defence paying the entire cost of construction, operation, and maintenance. This method is the last resort because of the high capital investment in school buildings, coupled with the uncertain future of so many military establishments.

Present Status. The present status of the Department of National Defence School system is presented in Table I.

TABLE I

DEPENDENTS' SCHOOLS OPERATED BY THE DEPARTMENT OF NATIONAL DEFENCE IN CANADA AND OVERSEAS, APRIL 1964

Service (Strength)	<u>Schools</u>		<u>Teachers</u>		<u>Pupils</u>	
	Canada	Overseas	Canada	Overseas	Canada	Overseas
RCN (21,600)	5	0	110	0	2772	0
Army (49,400)	11	4	505	152	12062	2776
RCAF (52,400)	47	10	765	286	17469	4635
Totals (123,400)	63	14	1380	438	32303	7411

These figures are as published in April 1964,³ but any changes

³Ibid., p. 6.

since that date should be relatively slight. The relatively small number of Royal Canadian Navy Schools may be explained by the fact that the RCN bases are usually in seaports of a considerable size. A large proportion of the RCN personnel live in civilian school districts, where their dependents attend the local civilian school. The Royal Canadian Air Force has the greatest number of schools, both numerically and proportionally, because it has a large number of isolated or semi-isolated units, such as radar sites. The strengths of each service were given in a speech made in the House of Commons by the Minister of Defence, Mr. Hellyer, on December 5, 1963. The figures have been rounded to the nearest hundred to compensate for any changes between that date and April 1964.

The policy of avoiding the construction of a National Defence school except as a last resort is evidently successful. The 1961 Census of Canada showed that out of a total of 158,616 children of armed forces personnel, 79,638 were attending some kind of full-time school,⁴ whereas only 32,303 pupils were attending Department of National Defence schools in the 1963-1964 school year. In the Department of National

⁴ Dominion Bureau of Statistics, Census of Canada 1961, Bulletin 2.1-9, (Ottawa, 1964) Table 82.

Defence overseas it may be assumed that, except for a minute proportion attending private schools, all dependents of school age are attending schools administered by the Department of National Defence.

Resultant Educational Problems. Although a review of the literature will show that there are conflicting opinions concerning the adverse effects of mobility on students, there are certain obvious disadvantages in the amount of mobility experienced by military dependents. These disadvantages, which will be detailed in the forthcoming sections of this chapter, may be classified in two main areas, educational and social, with the reminder that these areas are inter-related.

Purpose of the Study

The purpose of this study was to investigate the consequences of mobility for the adolescent dependents of military personnel attending school. More specifically, the purpose of the study was two-fold:

1. To compare the military dependents and civilian students of a modern high school with respect to variables such as mental ability, age, achievement, delinquency, and

2. To determine the social interaction, the pattern of extra-curricular activities, and the personal educational problems of the two student populations.

Importance of the Study

Although the Armed Forces are perhaps one of the most obvious examples, a considerable proportion of the total population changes residence periodically. As the next chapter shows, the quantitative aspects of internal migration are reasonably well documented through government agencies such as the Dominion Bureau of Statistics, although even in this area there are surprising deficiencies of information. There are also numerous research reports on the reasons and motivation for mobility. But in the area of the effects of mobility on the individual there is surprisingly little research, much of it contradictory. Obviously, in the case of the Armed Forces the mobility is not voluntary but compulsory, whereas for the civilian population mobility may be either. Consequently, this study is made to determine the educational and social effects of mobility on students in a certain age group, in the hope that the body of knowledge on this little-documented area of adolescence might be increased.

II. THE PROBLEM

Statement of the Problem

What are the effects of the high mobility of military personnel upon the education of their adolescent dependents? The problem involves the selection and investigation of factors wherein the adolescent dependents of military personnel differed significantly from a civilian student population in the same school environment.

Delimitation of the Problem

The problem is necessarily limited by the availability of the data and by the resources of the investigator. Because of these factors it was necessary to delimit the problem as follows:

1. Investigation was confined to the local situation, namely the high school in the town nearest the military base.
2. The study involved only those dependents of military personnel actually attending high school and ignored the sizable number of dependents of high school age who had dropped out of school.
3. The study investigated only the following areas: age, mental ability, delinquency, achievement, mobility,

extra-curricular activity, sociometric association, interprovincial education differences.

4. Only the school years 1962-1963 and 1963-1964 are treated in the study.

Assumptions

For the purpose of this study certain assumptions were made, as follows:

1. It is assumed that the adolescent dependents who are the subjects of the study are a representative sample of the total population of adolescent dependents.
2. It is assumed that the civilian student population are representative of civilian rural school populations but not necessarily representative of all civilian school populations.
3. It is assumed that the effects of voluntary and compulsory mobility are similar.
4. It is assumed that the students who completed the questionnaire did so in good faith and with reasonable care and accuracy.
5. It is assumed that the students who completed the questionnaire are a fair cross-section of the total population of the collegiate.

General Hypotheses

The following hypotheses are made concerning the areas to be investigated in the study:

1. Military students and civilian students differ in their mobility and how they are affected by mobility.
2. Military students and civilian students differ in age, mental ability, and incidence of delinquency.
3. Military students and civilian students differ in academic achievement.
4. Military students and civilian students differ in their views of problems areas in education.
5. Military students and civilian students differ in their participation in extra-curricular activities.
6. Military students and civilian students differ in their patterns of sociometric choice.

Null Hypotheses

- Ho: 1.1 No significant difference exists between the number of schools attended by military and civilian students.
- Ho: 1.2 No significant difference exists between the number of provinces lived in by military and civilian students.

- Ho: 2.1 No significant difference exists between the mean intelligence test scores of military and civilian students.
- Ho: 2.2 No significant difference exists between the mean age of military and civilian students in the same grade.
- Ho: 2.3 No significant difference exists between the delinquency rates of military and civilian students.
- Ho: 2.4 No significant correlation exists between the number of schools attended and the delinquency of military students.
- Ho: 2.5 No significant difference exists between the number of provinces lived in and the delinquency of military students.
- Ho: 3.1 No significant difference exists between the academic achievement of military and civilian students.
- Ho: 3.2 No significant correlation exists between the number of schools attended and the academic achievement of military students.
- Ho: 3.3 No significant correlation exists between the number of provinces lived in and the academic achievement of military students.

- Ho: 4.1 No significant difference exists between the number of educational problems reported by military and civilian students.
- Ho: 4.2 No significant difference between the type of educational problem reported by military and civilian students.
- Ho: 5.1 No significant difference exists between the extra-curricular participation of military and civilian students.
- Ho: 5.2 No significant difference exists between the participation of male and female students in extra-curricular activities.
- Ho: 5.3 No significant correlation exists between the length of time school is attended and extra-curricular activity.
- Ho: 6.1 No significant difference exists between the sociometric choices made by military and civilian students.
- Ho: 6.2 No significant difference exists between the sociometric choices made by male and female students.
- Ho: 6.3 No significant correlation exists between sociometric choice and length of collegiate attendance in military group.

- Ho: 6.4 No significant correlation exists between sociometric choice and length of collegiate attendance in civilian group.
- Ho: 6.5 No significant correlation exists between number of schools attended and sociometric choice of military students.
- Ho: 6.6 No significant correlation exists between number of provinces lived in and sociometric choice of military students.

Testing of Hypotheses. The chi-square (x^2) test was used in this study to test the null hypotheses. The reasons for the selection of this test, examples of its application, and its limitations, will be discussed thoroughly in Chapter III, which deals with the research design of the study.

The level of significance beyond which the null hypothesis was rejected is .05, indicating that if the probability of an observed result is more than five out of one hundred the null hypothesis was accepted. Where it is thought to be noteworthy, significance levels of .01 or lower will be indicated.

III. DEFINITIONS OF TERMS USED

Some of the terms used in the study will be unfamiliar to anyone outside the Department of National Defence. Other terms are given a meaning in the study different from that normally given. For these reasons the following terms are defined as used in the study.

Adolescent

The term adolescent is usually defined in terms of physical development or maturity, for example Cole's definition of an adolescent is someone between the ages of thirteen and twenty-one.⁵ For the purpose of this study an adolescent is a student, male or female, attending the high school in which the study was made.

Dependent

A dependent is a person living in the home of a member of the Armed Forces. This person need not be a son or daughter, although this is normally the case.

Military Personnel

Military personnel are any members of the Canadian

⁵Luella Cole, Psychology of Adolescence (fifth edition; New York: Holt, Rinehart and Winston, 1962),

Armed Forces. They may be officers or other ranks from any service, although in fact the study was concerned only with the personnel of the Canadian Army and the Royal Canadian Air Force.

Department of National Defence School

A Department of National Defence School is a school, elementary or secondary, which is provided on Government of Canada land for the education of the dependents of military personnel.

Military Student

A military student is a student who is attending the high school under study and who is in the family of a member of the Armed Forces.

Civilian Student

A civilian student is a student who comes from a civilian family belonging either to the town in which the high school is located, to a neighbouring town or village, or to a farm in the surrounding area.

Mobility

This term is often applied to social or occupational movement. In the present study mobility refers to the process

of change of residence. "Short-range" mobility will refer to the number of schools attended; "long-range" mobility to the number of provinces or countries lived in by the student.

Delinquency

The term delinquency usually includes a pattern of deviant behavior in school, home and community. In this study delinquency is defined as behavior which results in the individual responsible being sent to the principal for disciplinary action.

CHAPTER II

REVIEW OF THE LITERATURE

I. INTRODUCTION

This chapter contains a review of studies, reports and articles relating to the major areas with which this study is concerned. The greater part of the literature cited deals with various aspects of mobility: magnitude and nature; mobility and education; mobility and military dependents. Included also are reviews of important and representative literature on the topics of delinquent behavior, sociometric choice, and curriculum variation in Canada.

II. MOBILITY

Magnitude and Nature of Mobility

1961 Census of Canada. The most recent and most reliable study on the mobility of the population of Canada is the report on migration compiled from the 1961 Census of Canada data by the Dominion Bureau of Statistics.¹ In addition to the usual quantity of tabulated data, this bulletin

¹Dominion Bureau of Statistics, 1961 Census of Canada, Bulletin 4.1-9, (Ottawa, 1964).

contains much valuable information on the meaning and limitation of the statistics presented.

Mobility for census purposes is change of residence by a person five years of age or older between June 1, 1956, and June 1, 1961, which was the enumeration date for the 1961 Census of Canada. Persons between the ages of five and fourteen were assumed to have experienced the same mobility as the head of the family to which they belonged. A move of residence was classified as follows: within the same municipality; from a different municipality in the same province; from a different municipality in a different province.

The degree of mobility for the total population of Canada between 1 June 1956 and 1 June 1961 is given by Table II. Thus for Canada approximately forty-two percent of the population over five years old was living in a different place of residence than five years previously. This figure appears considerably lower than the estimated figure of twenty percent annually in the United States,² which indicates a one hundred percent mobility rate over a five year period.

²P.E. Blackwood, "Migrants in Our Schools," Educational Leadership, XIV, 4, pp. 207-213.

TABLE II

MOVEMENT OF POPULATION FIVE YEARS OLD AND OVER, BY SEX AND
TYPE OF MOVEMENT BETWEEN 1 JUNE 1956 AND 1 JUNE 1961³

CLASS	TOTAL POPULATION (CANADA)	M O V E R S				TOTALS
		WITHIN MUNICIPALITY	FROM DIFFERENT MUNICIPALITIES			
			WITHIN PROVINCE	DIFFERENT PROVINCE	NOT STATED	
MALES	7,691,110	1,933,018	1,022,254	266,172	14,777	3,235,921
FEMALES	7,611,511	1,930,761	1,042,221	260,618	14,479	3,248,079
TOTALS	15,302,621	3,863,779	2,064,475	526,790	29,256	6,484,000

³ Adopted from Table XI, Bulletin 4.1-9, op. cit.

There are several reasons for the apparent disparity between the two rates of mobility. Because of biases introduced by improper enumeration procedures or improper responses to the census questionnaire the Dominion Bureau of Statistics states that there is some understatement of mobility, especially among the most mobile segments of the population. Other factors which may cause understatement of mobility are: no provision in the census data is made for those who may be in the same residence as five years previously but who have moved in the intervening five years; more importantly, multiple movements over the period are not accountable, as the mover may have changed residence many

times between the enumeration dates. Since it is probable that a relatively small proportion of the population has a high rate of mobility, the estimate of twenty percent change of residence per year may well be true for Canada also.

Mobility of Armed Forces. As the census figures show, there is undoubtedly a high rate of mobility in modern society. For this study it was assumed that the Armed Forces would be among those occupations with the highest mobility, an assumption which is given weight by the results of a study by Tarver.⁴ This study was concerned with the inter-county residential mobility of occupations over a one-year period. The rates of mobility varied significantly among twelve major occupational groups; professional and technical occupations had the highest mobility, manufacturing industry workers and service workers had the lowest.

The highest inter-county mobility rate was shown by Armed Forces personnel, of whom 33.4 percent had changed residence in one year, followed by airline pilots with a mobility rate of twenty percent. When inter-state mobility was considered the Armed Forces had the highest rate at 26.9 percent, followed by surveyors with 12.8 percent.

⁴J.D. Tarver, "Occupational Migration Differentials," Social Forces, XLIII, (December, 1964), pp. 231-241.

While these figures are concerned with the Armed Forces of the United States, it is probable that the Armed Forces of Canada and the United States are similar enough that the data may be assumed to be reasonably representative of the Canadian situation. As the mobility figures of the subjects of the present study will show, the Armed Forces has a vastly greater mobility than the general population.

Adjustment to Mobility. The problem of mobility or internal migration of population has been the subject of an extensive literature by sociologists. Most of the studies are concerned with the magnitude and direction of the movements, a considerable number with the reasons for mobility, but very little has been done on the effects of mobility on the mover. Some aspects of a mover's adjustment to mobility are covered in two studies by the Iowa State University Centre for Agricultural and Economic Development⁵ and by Rose and Warshay.⁶ The Iowa State University book is primarily concerned with the mobility, and its consequences, of the rural population of the state. The study found that change

⁵ Family Mobility in Our Dynamic Society, Iowa State University Centre for Agricultural and Economic Development, Iowa State University Press, 1965.

⁶ A.M. Rose and L. Warshay, "The Adjustment of Migrants to Cities," Social Forces, XXXVI, (October, 1957), pp. 72-76.

of residence from a rural environment to an urban environment involved less adjustment for the adult than for the child of school age. One of the main reasons proposed for this difficulty of adjustment is the difference in quality of the two educational systems. The study concluded that there was strong evidence that, in general, rural youth receive a less adequate education than urban youth. The study also stressed the need for more research to determine the differences in required adjustment between voluntary mobility and involuntary mobility.

The Rose and Warshay study was concerned with migrants who came to Minnesota from all parts of the United States outside a radius of forty miles in the period March 1, 1955 to May 31, 1955. The findings were based on data collected from questionnaires mailed to all newcomers to the city, as determined from city records. Contrary to hypothesis, the research found that the migrants with previously existing primary contacts such as relatives or friends are slower to adjust to the community than those with no primary contacts. The researchers proposed that the presence of the primary contacts insulated the migrant from community contacts. It should be noted that of the 533 questionnaires mailed to migrants only 110 were returned. The authors feel that the

results are still of value but obviously findings from such a small sample must be treated very cautiously.

Mobility and Education

The literature to be considered at this point concerning mobility and education in general consists mainly of research studies. Preceding the review of these studies is a report of two general articles dealing with the problems of mobility and education as they affect the education system and the student.

Problems of Mobility. The problems of mobility as they concern the school system and its staff are reviewed by Blackwood.⁷ He quotes the figure of twenty percent of the population changing residence each year, thirty-one million in the year 1955. The immediate problems of the principal and teacher are the assessment of the student's educational level and placement of the student in the appropriate grade. A larger problem confronting the school system which experiences a high rate of internal migration is the financing of additional school facilities required. He suggests more widespread use of transfer records to accompany the mobile

⁷ P.E. Blackwood, "Migrants in Our Schools, "Educational Leadership, XIV, No.4, pp. 207-213.

student and a more flexible curriculum to meet his needs.

Wattenberg, as the title of his article indicates,⁸ is more concerned with the effects of mobility on the mental and emotional adjustment of the student. Wattenberg claims that mobility is a factor which contributes to maladjustment in children and later in adults. Problems of children which arise from mobility are as follows:

1. Insecurity of children as the result of disruption of their former environment.
2. The necessity of finding new friends in the new community.
3. The additional problems of adolescents because of the sexual factor and the presence of cliques and gangs.
4. The problems experienced by parents are felt by the children also.

Wattenberg suggests the necessity of a warm and friendly attitude by the teacher, plus frequent use of sociometric techniques to ensure newcomers are fitted into the classroom society with as little friction as possible.

This article is of interest as a review of problems which might arise as a result of mobility, but it would be

⁸ W.W. Wattenberg, "Mobile Children Need Help," Educational Forum, XII, pp. 335-343.

of more value if the claims made were supported by relevant research findings.

Research Studies-Elementary Education. The relationship between mobility and various characteristics of elementary school children has been the object of two studies. Munzer examined the relationship between the mobility of elementary school children in an urban school district and their academic achievement.⁹ The findings of his study were that there was very little relationship between mobility and mean academic achievement of third grade and sixth grade students.

The influence of mobility on various factors of adjustment in elementary school children was studied by Downie.¹⁰ He found no significant difference in intelligence between children with a high rate of mobility and children who had been in continuous residence at the school. He also found that students who had moved only once or twice were

⁹ J.H. Munzer, "A Study of the Relationship Between the Mobility and Academic Achievement of Third Grade and Sixth Grade Children" (Unpublished Ph.D. thesis, the University of Michigan, 1961), abstract.

¹⁰ A.N.M. Downie, "Comparison Between Children Who Have Moved from School to School and Those Who Have Been in Continuous Residence on Various Factors of Adjustment," Journal of Educational Psychology, XXXIV, pp. 50-53.

better adjusted socially than those who had been in continuous residence or who had a high rate of mobility.

Research Studies-Secondary Education. The studies done in secondary schools concerning the effects of mobility include two in Canadian schools. Nyberg investigated the relationship between the number of schools attended and the Grade Nine Departmental Examination marks for 100 pairs of randomly selected students.¹¹ The pairs of students who matched on the basis of sex, age, achievement on mental ability tests, attendance, and the type of school where grade IX was taken. The findings of the study were that no significant differences in achievement existed between high transiency and low transiency students.

In his investigation of the factors related to failure in grades ten and eleven in Alberta Mallet dealt with transiency.¹² The data for the study was obtained by means of a questionnaire completed by 300 students in grades ten and eleven. Mallet concluded that having a record of

¹¹V.R. Nyberg, "A Study to Determine the Effect of Transiency on Grade IX Departmental Examination Marks," The Alberta Journal of Educational Research, XI, No. 3.

¹²I.B. Mallett, "A Study of Factors Associated with Failure in Selected Subject Areas of Grades Ten and Eleven" (Unpublished M.Ed. thesis, University of Alberta, 1963).

transiency prior to grade ten was unrelated to failure in grades ten and eleven. His conclusion may be correct but it is not proved conclusively by the data presented in his study. Table III reproduces the pass-fail data for grade ten and eleven mathematics examinations.¹³ A difference of 0.4 in the mean number of communities lived in by the grade eleven mathematics pass-fail group is possibly not significant, but since the hypothesis has been stated the proof should be available before rejection. The grade ten mathematics students show a ratio of almost one to two in the number of communities lived in by the pass and fail groups. Unfortunately, there is insufficient data given in the study to calculate the significance of the difference.

TABLE III

TRANSIENCY OF GRADES TEN AND ELEVEN PASS-FAIL GROUPS IN
MATHEMATICS AS MEASURED BY THE NUMBER OF
COMMUNITIES LIVED IN

Achievement	Mean Number of Communities	Number of Students
<u>Grade X</u>		
Pass	2.3	100
Fail	4.5	23
<u>Grade XI</u>		
Pass	2.3	73
Fail	2.7	24

¹³Op. cit., pp. 105-106.

The effects of mobility in a suburban high school were investigated by Fouty.¹⁴ He found no significant relationship between mobility and sex, mobility and education of parent, or between mobility and intelligence test scores. Girls as a whole achieved significantly more than boys, but there was no indication that the effects of mobility were different for boys than for girls. He concluded that there was no significant difference between children grouped by levels of mobility.

The Canadian Education Association Study. This study was made to determine the extent of the problem of the interprovincial transfer student.¹⁵ The Canadian Education Association quoted several sources which dwelt on the gravity of the problem but with conflicting data. These quotations are reproduced here, not as supporting literature, but as an indication of the fact that the problem of mobility is gaining publicity, much of it not well-informed:

¹⁴A.T. Fouty, "A Study of the Effects of Mobility and Related Factors on the Academic Achievement of Children in a Suburban High School" (Unpublished M.Ed. thesis, University of Alberta, 1963).

¹⁵Interprovincial Transfers: The Magnitude of the Problem. Information Bulletin, Canadian Education Association, March 1965.

I am surprised to learn how big the problem is. DBS say that, each year for the past few years, about 44,000 families-representing 110,000 children-moved from one province to another.¹⁶

With over 100,000 children a year moving from one province to another, much more is required if this very considerable movement is to be facilitated with a minimum of hindrance and dislocation, and without undue penalty to the children involved.¹⁷

...about 120,000 students face the problem of moving from one province to another each year.¹⁸

It would appear that over the next ten years in Canada over one million school children will transfer from one province to another, and over 20,000 of these children will experience serious difficulty in adjusting to the new curriculum.¹⁹

An estimate based on DBS figures from seven provinces would indicate that from 35,000 to 40,000 pupils are involved in transfers each year.²⁰

The number of children moving between provinces in the twelve month period from July 1, 1962 to June 30, 1963 is tabulated in Table IV. This table is read horizontally.

¹⁶ Imperial Oil Review, December, 1962, quoted in Interprovincial Transfers.

¹⁷ Winnipeg Free Press, June 21, 1961 quoted in Interprovincial Transfers.

¹⁸ Edmonton Journal, February 27, 1962, quoted in Interprovincial Transfers.

¹⁹ Canadian Home and School Research Committee Report, 1962, quoted in Interprovincial Transfers.

²⁰ Quest, Sep-Oct., 1964, quoted in Interprovincial Transfers.

TABLE IV

NUMBER OF CHILDREN TRANSFERRED INTO EACH PROVINCE, WITH PROVINCE OF ORIGIN,
BETWEEN JULY 1, 1962 AND JUNE 30, 1963

PROVINCE	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	YUKON NWT	TOTALS
NFLD	----	42	556	214	514	731	72	42	74	80	10	2335
PEI	34	---	439	221	61	403	30	29	76	40	4	1337
NS	530	444	---	1495	1047	3988	241	122	350	729	34	8979
NB	182	239	1591	----	1475	2129	165	47	144	157	23	6152
QUE	308	74	1074	1859	----	10445	642	224	895	897	90	16508
ONT	1078	397	4022	2566	10215	----	3728	1436	3360	3323	273	30398
MAN	69	54	260	140	598	3704	----	2484	1815	1604	70	10798
SASK	35	22	134	77	239	1424	1924	----	2982	1449	64	8350
ALTA	76	73	415	202	730	3196	2112	5017	----	5134	571	17526
BC	112	52	785	243	995	3347	1937	2303	6593	----	479	16846
YUKON NWT	9	6	36	26	49	267	74	68	471	437	---	1443
TOTAL												120672

Thus in the top line Newfoundland received 42 from Prince Edward Island, 556 from Nova Scotia, and so on for a total of 2,335 children transferred into the province.

The Canadian Education Association analysed the total of 120,672 students for all provinces and concluded that the actual number of school children involved was about 72,000, or 61 percent of the total figure. The discrepancy arises because the data released by the Dominion Bureau of Statistics refer to the total number of children for whom family allowance cheques had been re-directed, a number which includes a proportion not yet in school or not attending school for some reason. The exact inter-provincial migration is further complicated by the neglect of the provinces to differentiate between immigrant children to Canada and inter-provincial migrants when reporting the number of students transferred into schools in the province.

The conclusions of the Canadian Education Association study were as follows:

1. The number of students involved in inter-provincial transfers is between two and three percent of the total school population in a given year.

2. The magnitude of the problem is not as great as was expected from the type of comments quoted earlier.

3. The number of students transferred from schools in the same province is approximately three times as great as the number transferred from other provinces.

Mobility and Military Dependents

The literature on the education of military dependents falls into two categories: general articles on the education of dependents and attendant problems, and studies in a particular school attended by dependents. Warnock²¹ concluded that dependents' schools have two major problems not experienced to the same extent by civilian schools. The first of these problems is, not surprisingly, the tremendous turnover in student population. The average stay of a school child in the dependents' schools of the United States is slightly more than two years, which means that a teacher might expect to have almost half of his class transferred in the course of the year.

This constantly changing situation makes great demands on teachers, leading to the second problem, turnover of teachers. This situation is not helped by the reluctance of local boards of education to grant teachers more than one

²¹J.A. Warnock, "Dependents' Schools Have Problems, Too", NEA Journal, (November, 1956).

year's leave of absence to teach in dependents schools.

In a survey article of the facilities provided for the education of service children Mead²² makes the same point as Warnock about the excessive turnover of students. Interestingly, however, he feels the teacher situation to be more favourable in dependents' schools than in civilian schools. He reports that nine-tenths of the teachers in Air Force dependents' schools in Europe have a Master's degree or at least five years teaching experience. Evidently, if aware of the turnover of teachers, he considers the fact to be of little importance compared to the qualifications of the teachers.

The relationship between the number of schools attended by a student and characteristics such as intelligence, achievement, personal adjustment and extra-curricular activities was the subject of a study by Swanson.²³ The student population was mainly, but not exclusively composed of dependents from a nearby large United States Air Force base.

²²B.A. Mead, "Concerns for the Education of Service Children," Childhood Education, (February, 1959).

²³L.P. Swanson, "An Investigation of the Relationship Between Selected Characteristics of Junior High School Children and the Number of Schools Attended," (Unpublished Ph.D thesis, Purdue University, 1961), abstract.

There was no significant difference between military students and civilian groups on measures of intelligence, achievement, personal adjustment or extra-curricular activity. The military students made significantly better grades in Industrial Arts than the civilian students.

In one of the few studies made of a school on a military base Hayes studied the problems of mobility and suggested some solutions.²⁴ The school concerned was located at Fort Campbell, a United States Air Force base in Kentucky. The school contained a student population of 2,300, whose average length of stay in the school was less than three years. The problems of mobility encountered in the study were as follows:

1. Mobility makes mandatory a continuing evaluation and reporting of student progress.
2. Mobility necessitates careful placement of the student in the proper group for learning and adjustment.
3. Mobility requires facilitation of teacher-pupil adjustment
4. Mobility creates fear, anxiety, and tension in many children.

²⁴E. Hayes, "Changing Neighbourhood-Changing School," Education Leadership. XVII, (February, 1960), pp. 298-301.

The measures used to meet these problems in this particular situation were: maximum parent contact through report cards, interviews and visits; the installation of an extensive testing and counselling program; an orientation program for new teachers regarding the problems of the mobile student; attempt by the teacher to create a warm, friendly climate in the classroom.

III. DELINQUENCY

There is a vast literature dealing with the causes, prevalence and treatment of delinquency. The literature on delinquency presented here is concerned with delinquency and mobility or delinquency in the form of school discipline infractions.

In his study of a twenty-five percent sample of all boys and girls in grades nine, ten, eleven, and twelve in three medium-sized Washington towns, Nye found positive relationships between mobility and delinquency.²⁵ For boys there was a significant relationship between delinquent behavior and one or more moves. For girls the relationship was not significant until five or more moves had been made. For

²⁵ I.F. Nye, Family Relationships and Delinquent Behavior, (New York: John Wiley and Sons, 1958).

all delinquents, delinquent behavior was significantly higher among those born in a state other than the one in which they presently reside. The author's theory was that spatial mobility decreases indirect controls exercised outside the family by peer groups and adults with whom the delinquent identifies.

The relationship between misbehavior and achievement was investigated by Hrabi.²⁶ He studied students who had been reported for offences such as lateness, truancy, class disturbance, and smoking in school. In the matriculation pattern the mean achievement of discipline cases in grades ten, eleven and twelve was significantly lower in language and social studies than the mean achievement of non-discipline cases. In the general pattern there was no significant difference between the mean achievement of discipline and non-discipline cases.

An intensive investigation of the factors related to delinquency was made by the Gluecks in their study of 500 matched pairs of delinquent and non-delinquent boys.²⁷

²⁶ J.S.T. Hrabi, "A Comparative Study of Male Discipline and Non-Discipline Cases in a Selected Composite High School" (Unpublished M.Ed. thesis, University of Alberta, 1958).

²⁷ S. Glueck and E. Glueck, Unraveling Juvenile Delinquency, (Cambridge: Harvard University Press, 1950).

The Gluecks found a significant difference between delinquents and non-delinquents when frequency of moving was considered. Twenty-one point three percent of the delinquent group had moved less than five times, compared to 58.5 percent of the non-delinquent group. At the other extreme 23.9 percent of the delinquent group had moved fourteen or more times, compared to only 5.2 percent of the non-delinquent group.

In school attainment the delinquents were significantly inferior to the non-delinquents, to the extent of almost one full grade on the average. The differences in reading achievement and arithmetic between the two groups was highly significant.

In addition to frequency of movement the Gluecks also considered the factor of the number of schools attended. The results were again highly significant, with 43.8 percent of the delinquents having attended five or more schools, compared to 17.2 percent of the non-delinquents.

The relationship of mobility to truancy was one of the topics investigated by White.²⁸ He concluded that there

²⁸ S.L. White, "The Relationship of Certain Attributes to Attendance Problems in the Philadelphia Public Schools" (Unpublished Ed. D. thesis, Temple University, 1961).

was a significant difference between truant and non-truant boys on the incidence of change of residence. There was also a significant difference in the number of schools attended between truant and non-truant boys.

IV. SOCIOMETRIC CHOICE

A large part of the literature on sociometric choice is concerned with sociometric techniques, measuring instruments, and treatment of sociometric data, rather than the applications of sociometric choice in the classroom situation. The sociometric technique and data used in the present study were comparatively simple, but sufficient literature will be cited to provide a background for their understanding. In addition some reports of the use of sociometric techniques will be considered.

Sociograms and Sociometric Choice. The origin of many of the sociometric instruments and conventions still in use today was the volume by Moreno published more than thirty years ago.²⁹ The sociometric tests described by Moreno were immediately popular because of their simplicity, their lack

²⁹J.L. Moreno, Who Shall Survive? (Washington: Nervous and Mental Disease Publishing Company, 1934).

of resemblance to a test, and the possible favorable after-effects of their use. Moreno described for the first time a sociogram, which is a pictorial representation of the choices and rejections made by the members of the group. He introduced terms to describe phenomena of the sociogram; terms such as 'overchosen', 'isolate', 'mutual pair', which are self-explanatory almost without viewing a sociogram. Moreno advocated three requirements of a sociometric test:

1. Choice criteria should be specific, not merely on the basis of 'friendship'.
2. Results should be used to restructure the group, resulting in the tests having meaning for the subjects.
3. A specific number of choices should be allowed.

Although there have been many variations and additions to Moreno's requirements, there are essentially the same basic concepts in present day sociometric research.

The sociogram is closely examined by Lindzey and Borgatta in the chapter on sociometric measurement in their volumes on social psychology.³⁰ They believe that the sociogram has limitations because of the various ways the figure

³⁰ G. Lindzey and E.F. Borgatta, "Sociometric Measurement," in Handbook of Social Psychology, edited G. Lindzey, Vol. I, (Cambridge: Addison-Wesley, 1954).

can be drawn and that more objective records of sociometric data should be available. However, as a dramatic and compelling way of presenting sociometric data the sociogram has unique qualities, at the same time it presents all the results of the sociometric test in one figure. The question of whether to assign arbitrary weights to first, second, or further choices has been the subject of controversy. The conclusion of Lindzey and Borgatta was that the practice of assigning equal weights to choices was probably the safest, as there is no agreement on how the arbitrary weight is to be determined. The authors review various types of matrices for the treatment of sociometric data, and they report that the chi-square test is satisfactory as a test of significance for differential choice patterns.

Sociometric Studies. The nature of the choice process was the subject of a sustained analysis by Jennings, as reported in her study of sociometric choice in a large girls' institution.³¹ One of the objects of the study was to determine what qualities are possessed by leaders, that is, those who received most choices from the other girls. Jennings found that leaders rebelled against the dominant behavior of

³¹H.H. Jennings, Leadership and Isolation, (New York: Longmans Green and Company, 1950).

others, they were solicitous of the welfare of the less competent, and they were quick to sense group needs and try to satisfy them. The relationship of choice to other factors was also investigated in the study. There was no significant relationship between the number of choices received and age, intelligence, or length of time the individual had been in the community.

Sociometric studies made in the classroom are reported by Richardson³² and Shukla.³³ The object of Richardson's study was to determine if the writing ability of students could be improved by grouping them on the basis of their sociometric association. The subjects of the study were two parallel classes of girls, matched in intelligence and attainment. One class worked individually on writing assignments, while the other class worked in groups of three or four whose composition was determined by sociometric means. The groups in this class were changed periodically in the light or periodic sociometric tests. The experimental class improved greatly in English composition ability over the control

³²J.E. Richardson, "Classification by Friendship: Sociometric Techniques Applied to the Teaching of English," Studies in the Social Psychology of Adolescence, C.M. Fleming, editor (London: Rutledge and Kegan Paul, 1951).

³³J.K. Shukla, "A Study of Friendship" in Fleming, op. cit.

class, but equally importantly, there was a great increase in social interaction in the experimental group, with a reduction in the number of closed cliques and the complete elimination of isolates.

The determining factors in the formation of friendly pairs were studied by Shukla in his analysis of the friendships between secondary school students. There was no significant relationship in the intelligence of the friendly pairs of boys, whereas in the case of the girls intelligence was highly correlated with friendship. When age was disregarded and only the mental age considered, the correlation for both boys and girls was significant. "Work" traits such as achievement were significantly associated with low friendship ratings, whereas "Character" traits such as loyalty were significantly associated with high friendship ratings. It is noted that the subjects of the study were in the twelve to fifteen year age group.

V. CURRICULA VARIATION IN CANADA

There are two main aspects of the implications of the differing curricula of the provinces of Canada for the high school student who is the object of an interprovincial transfer. The first of these is the variation in requirements for

graduation from secondary school, and the second aspect is the difference in admission requirements of Canadian universities. These topics have been the objects of a study by the Canadian Education Association,³⁴ a Ph.D. thesis by Wangerin,³⁵ and a yearly compilation by the Canadian Universities Foundation.³⁶

The Canadian Education Association booklet confines its attention to the required subjects and optional subjects of an academic nature. The report concluded that, because of the ever-increasing variety and range of curricular offerings by the provincial education systems, the subject of inter-provincial differences "was fast becoming so complex as almost to defy analysis". The difficulty of comparing requirements is complicated by the use of terms by each province which are not necessarily similar in meaning. Most of the provinces are alike in defining the requirements for graduation in terms of subjects taken in the final year; British

³⁴ Requirements for Secondary School Leaving Certificates, Canadian Education Association, (Toronto, 1960).

³⁵ W.M. Wangerin, "A Descriptive Study of the Minimum Requirements for Graduation from Secondary Education in the Provinces of Canada in 1958" (Unpublished Ph.D. thesis, University of Alberta, Edmonton, 1958).

³⁶ Admission Requirements of Canadian Universities 1963-1964, Canadian Universities Foundation, (Toronto, 1964).

Columbia and Alberta, however, specify the requirements for graduation in terms of credits accumulated over the secondary school grades. As an example of the diversity of the curricula across Canada it may be noted that English is the only compulsory subject required for graduation by all provinces, including Quebec. A further complicating feature of secondary education in Canada is the grade at which secondary education is terminated, which may vary from grade XI in Newfoundland to grade XIII in Ontario and British Columbia.

In some provinces the requirements for graduation may be equivalent to university entrance requirements, as in New Brunswick, where a graduate from the academic program would have university entrance. But in other provinces graduation may be greatly different from matriculation, as in Alberta, where the student may graduate with 100 credits from high school with only two of the required six grade XII courses required for university entrance. The Canadian Universities Foundation report gives details of thirty-one provincial certificates or records of marks which may qualify the student for admission to university.³⁷ This range is caused by the practice in some provinces of admitting students at two

³⁷Op. cit., pp. 3-5.

levels, junior matriculation after eleven and twelve years, and senior matriculation after twelve or thirteen years of schooling.

The two preceding studies have been a straightforward description of the requirements for secondary graduation and university entrance respectively, with short explanations of terms and peculiarities of each requirement. The study of Wangerin is much more exhaustive and interpretative.

Wangerin devised a formula to compare the actual time spent in each subject by each province. When subjects were compared on this basis there were wide differences in the demands made on students by the individual provinces. For example, in modern languages, the senior matriculation student in Alberta spent less time in class than the junior matriculation student in Ontario.

Wangerin also studied the problem of proper placement of the interprovincial transfer student. Each provincial department of education was asked what standing they would grant a student from Alberta with complete grade eleven who moved to their province. There were surprising discrepancies in this area also: Ontario would admit the student to grade thirteen while British Columbia would admit him to grade twelve, thus requiring an additional year to matriculation.

The answers received from the provinces showed the difficulty experienced by department officials in understanding and evaluating the educational attainment of the interprovincial transfer student; the officials of two provinces admitted they had no knowledge of the matriculation standards of Alberta.

VI. CONCLUSIONS

There is considerable evidence that the available data on mobility, both quantitative and qualitative, are not conclusive. The most reliable data, as released by the Dominion Bureau of Statistics, are admittedly lacking in some respects, with the result that the annual figures for the mobility of the Canadian population are merely good estimates. The mobility of the Armed Forces is probably higher than that of any occupational group of comparable size.

There is evidence that migrants have problems in adjustment as the result of their mobility. Some factors which affect a migrant's adjustment are: the age of the person, the type of society between which mobility occurs, and the presence or absence of previously existing primary contacts.

Problems in education arising from mobility have two aspects: those affecting the educational system, such as

proper assessment and placement of the student; those affecting the mental and emotional adjustment of the student.

Research on the effect of mobility in elementary education has discovered little or no significant relationship between mobility and variables such as achievement, intelligence, or age. The results of research at the secondary level also revealed few significant differences between the students of high and low mobility. Although the problems of dependents' schools are often stated, there has been little research to date to verify or disprove the existence of these problems.

A positive relationship between mobility and delinquency was found by several studies, the correlation being greater for boys than girls. There was evidence of a relationship between delinquency and poor school attainment. Mobility was found to be significantly related to truancy.

The sociogram and sociometric techniques are valuable tools in education today. Sociometric means can be used to provide better learning situations as well as contribute to the improvement of maladjusted students.

There is a great variation in high school curricula and standards among the educational systems of the provinces of Canada. This diversity is shown in the requirements for high school graduation and university entrance.

CHAPTER III

DESIGN OF THE STUDY

I. INTRODUCTION

In this chapter the research methodology of the study is presented. A discussion of the local background shows why the particular design was adopted. The sources of the data, how the data was collected, and the treatment of the data are explained.

Local Background of the Study. The study was made at a military base in Western Manitoba. This base was believed to be peculiarly appropriate for a study of this nature because the military complement of the base is composed of approximately equal numbers of Canadian Army and Royal Canadian Air Force personnel. Since these two services comprise approximately five-sixths of the strength of the Armed Forces, a study in such a situation would have greater relevance than one made in a strictly army or air force environment.

Prior to 1961 all dependents of military personnel attended the National Defence School established on the base, but since September 1961 the high school students have attended the collegiate institute in the nearest town, approximately

four miles from the base. The Department of National Defence pays non-resident school fees for these students to the civilian school board. In addition, the Department gave capital assistance in the construction of a six-room addition to the collegiate, made necessary because of the attendance of the military students.

Groups Studied. The groups studied were military and civilian students, as defined in Chapter I, comprising the entire student population of a collegiate institute in Western Manitoba in the school years 1963-1964 and 1964-1965. The complete analysis of the subjects of the study is given by Table V. The comparatively equal number of military and civilian students was another factor which led to the selection of the collegiate; there were slightly more civilian students in the 1963-1964 school year and slightly more military students in the 1964-1965 school year. The smaller total of students in 1964-1965 was due to the failure of some students to complete a questionnaire, and not because of a decrease in enrolment. The proportion of male and female students in each group was almost equal, with a slightly greater percentage of females in each case, although in individual classes the ratio varied considerably.

TABLE V

COMPOSITION OF THE GROUPS STUDIED, BY GRADE AND SEX,
IN JUNE, 1964 AND NOVEMBER, 1964

	<u>MILITARY STUDENTS</u>			<u>CIVILIAN STUDENTS</u>		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
<u>June 1964</u>						
Grade IX	28	31	59	20	26	46
Grade X	17	31	48	23	33	56
Grade XI	15	11	26	26	16	42
Grade XII	12	10	22	13	12	25
Total	72	83	155	82	87	169
<u>November 1964</u>						
Grade IX	33	36	69	33	31	64
Grade X	19	23	42	16	26	42
Grade XI	14	13	27	12	13	25
Grade XII	5	7	12	7	2	9
Total	71	79	150	68	72	140

II. SOURCES OF DATA

School Records. The most important source of data was the official records of the collegiate institute. These records were made freely available to the investigator by the school board of the district in which the collegiate was located. From the school register data were obtained on age, sex, results of term tests, and information concerning parents which was necessary for categorizing each student as military or civilian, as defined in Chapter I. From the cumulative files of the students came information on intelligence test scores and discipline infractions. In addition, the principal supplied data on the scores made by students on departmental tests and Department of Education examinations.

Student Questionnaire. The most important source for social and personal data was a questionnaire completed by the high school student population.¹ From the questionnaire data were obtained concerning: the number of schools the student had attended in his educational career, the number of provinces or countries in which school had been attended, the extra-curricular activities participated in by the student, sociometric association, and problem areas in education as

¹Included as Appendix D.

perceived by the student.

Miscellaneous Sources. Statistical data were obtained from publications of the Dominion Bureau of Statistics, in particular the reports based on the 1961 Census of Canada. The Education Division of the Dominion Bureau of Statistics also supplied information on the personal request of the investigator. The Annual Report of the Manitoba Department of Education provided useful data. The Director of Education in the Department of National Defence supplied a copy of the Associate Defence Minister's Report to Parliamentary Returns, which contained much valuable information. Finally, the minutes of the National Defence high school which existed prior to 1961 were made available to the investigator, providing background material unobtainable elsewhere.

III. COLLECTION OF DATA

Preliminaries. Investigation of the problem proposed in Chapter I was necessarily attendant on the approval of the civilian school board which controlled the collegiate. The principal of the school, when the problem was explained, was favorably inclined to approve it, but he requested a letter which he could present to the school board for their approval.²

²Included as Appendix E.

The school board acknowledged the value of the study and directed the staff of the collegiate to cooperate where possible, with the stipulation that no class time be taken up except for the distribution and collection of the questionnaire.

Data From Records. Because of the restriction on the use of class time, it was decided to keep the questionnaire as short as possible, which meant that as much data as possible had to be obtained from school records. The records in question concerned the school year 1963-1964. The registers for each class in Grades IX, X, XI, and XII were obtained. Information was obtained from the registers about the age, sex, parents, term test scores, and final standing of every student who was present at the conclusion of the school year. Scores made on Department of Education tests and examinations were recorded for each student from lists supplied by the principal. The cumulative files of the students were made available to the investigator, yielding intelligence scores and discipline infractions.

Enough data were available from school records to form the basis for a study comparing military students and civilian students with respect to the variables age, achievement, intelligence and delinquency. However, as outlined in

Chapter I, data were required on other aspects of the problem, data which could be obtained only by means of a questionnaire.

Data From Student Questionnaire. Sufficient questionnaires for each student were delivered to each home-room teacher by the principal. On November 17, 1964, each student received a questionnaire and was requested to complete it personally where possible, and to return the completed form on the following day. Approximately eighty-nine percent of the questionnaires issued were returned. Even if permission had been given to have the questionnaires completed in class time, it is unlikely that the military students would have been able to supply accurate information concerning their mobility.

For each student who completed a questionnaire data were recorded concerning mobility, extra-curricular activities, sociometric choices, and factors which the student felt had adversely affected his education.

From the questionnaire sufficient data were available to form the basis for a study comparing military students and civilian students with respect to mobility, extra-curricular activity, sociometric choice, and problems met in education. It was not possible to compare students who did not answer the questionnaire with those who did, or those whose records were

available with those whose records were not available. However, of the 291 students who completed the questionnaire, data from records were available for 179, allowing the study of relationships between the questionnaire data and the records data. The questionnaire data for these 179 students has been included with the data from their records in the Table of Original Data, which is included as Appendix A to the study. The primary reasons for this procedure were the greater ease of comparison between the two sets of data, with a corresponding ease in recording figures for computation. A secondary reason was the reduction in length of the table by 179 cases.

IV. METHOD OF ANALYSIS

Treatment of Data. From the tabulated data³ compiled from the school records frequency distributions were made of each group with respect to the variables of age, mental ability, achievement and incidence of delinquency. Contingency tables were constructed in these variables, for the military and civilian group as a whole and for the male and female components of each group. The significance of the contingency tables was normally tested by the chi-square

³Included as Appendix A.

(χ^2) test.

Data from the questionnaire required a more varied treatment. Frequency distributions were made of each group with respect to the number of schools attended, number of provinces in which school was attended, number of extra-curricular activities participated in, the direction of sociometric choice for each group, and the number of educational problems, for each group. As before contingency tables were constructed and the distributions tested for significance. In addition to these procedures sociograms were made of classrooms where the numbers of military and civilian students were relatively equal. The problems of education as perceived by each group were given an interpretative analysis.

Correlations between mobility, both short-range and long-range, and the variables listed above, for military and civilian groups, male and female sexes were computed.

Statistical Procedures. A comparative study such as the present one is necessarily statistical in treatment. The statistical procedures used in the study followed Garrett's standard text on statistics,⁴ except where otherwise noted.

⁴H.E. Garrett, Statistics in Psychology and Education (fifth edition, New York: David McKay Company, 1958).

The chi-square test with a 0.05 level of significance for rejection of null hypotheses, was adopted as the test of significance for the study. This test was chosen because in most cases the observations could be classified into discrete categories and tabulated as a set of observed frequencies. Testing the null hypothesis involves testing whether the observed frequencies are significantly different from the expected frequencies.⁵ A further reason for the choice of the chi-square test was the relation of chi-square to the coefficient of contingency, given by the formula $C = \sqrt{\frac{X^2}{N + X^2}}$

The coefficient of contingency was selected because it is readily computed from chi-square. Moreover, the coefficient of contingency is significant when the chi-square value is significant. C may be corrected for the number of categories by dividing the computed C by its maximum obtainable value, which is given by the equation:

$$\text{Max } C = \sqrt{\frac{K - 1}{K}}$$

where K = number of categories.

This corrected coefficient of contingency ($\bar{C}$) gives

⁵ An example of the computation of X^2 is included as Appendix F.

⁶ Garrett, op. cit., pp. 392-396.

approximate equivalent of the coefficient of correlation.⁶

The chi-square test has certain limitations, which were believed to be outweighed by its advantage for the present study. With one degree of freedom, as in a fourfold contingency table, expected frequencies of less than five should not be used, a condition which rarely arose in the study. As an additional safeguard Yates correction for discontinuity was applied when expected frequencies were less than five. A further limitation of the chi-square test is its lack of power in comparison to a t-test, for example. However, with one degree of freedom, as in most of the contingency tables of the study, t is equal to χ , the square root of chi-square.⁷ Therefore, with one degree of freedom, a chi-square test and a t-test of the same statistics will lead to the same inferences.

V. SUMMARY

The study was made in a collegiate institute in Western Manitoba in 1964, the subjects being the student

⁶Garrett, op. cit., pp. 392-396.

⁷J.P. Guilford, Fundamental Statistics in Psychology and Education (second edition, New York: McGraw-Hill Book Company, 1950), p. 278.

population, comprising approximately equal numbers of military and civilian students. The main sources of data for the study were school records and a student questionnaire completed by the student population. From the school records information was obtained concerning age, sex, achievement and ability. The questionnaire yielded data on the educational history, extra-curricular activity and sociometric association of the subjects.

From the compiled quantitative data contingency tables were constructed to compare the two groups. The chi-square test was used at the 0.05 level of significance to test the null hypothesis. The coefficient of contingency was adopted as the measure of the relationship between variables.

CHAPTER IV

MOBILITY OF MILITARY AND CIVILIAN STUDENTS

I. INTRODUCTION

The mobility of military students and its consequences has been discussed at some length in this study. Now the question of the magnitude of this mobility must be considered. Does the military student really move around so much, or is this merely an impression which is not supported by the data? Question I of the questionnaire required the student to list the schools he had attended in the course of his educational career, working back from the present. The first line was completed, except for the commencement of stay at the Collegiate, to ensure uniformity in completion. This question provided three important items of information: the number of schools attended by each student, the number of provinces in which school had been attended, and the length of time at each school. It became evident from numerous discussions with the parents of military students that the dates recorded were often very approximate, especially where numerous transfers were involved. Consequently, the data on dates were used cautiously.

II. NULL HYPOTHESES

Ho: 1.1 No significant difference exists between the number of schools attended by military and civilian students.

The number of schools attended by the military and civilian students is given in Table VI. This distribution is

TABLE VI

NUMBER OF SCHOOLS ATTENDED DURING EDUCATIONAL CAREER
BY MILITARY AND CIVILIAN STUDENTS

No. of Schools	Military Students	Civilian Students
10 - 11	11	0
8 - 9	26	2
6 - 7	46	2
4 - 5	53	10
2 - 3	14	126
Total	150	140
Mean	6.1	2.6
Standard Deviation	2.1	1.1

$$t = 17.94$$

Significant at .05 level

very obviously significant, therefore the null hypothesis

Ho: 1.1 is rejected.

Since the students were already in high school the

minimum number of schools it was possible to attend was two, which meant that the student's elementary education had taken place at one elementary school, and that the student had come to the Collegiate direct from the elementary school. Although the frequencies in Table VI have been grouped for convenience, the actual number of civilian students who had attended only two schools in their educational career was ninety-two. In the military group only two students had attended two schools in their educational career. This figure itself is surprising, since it signifies that two military students had not been transferred during their entire elementary education. Of these two students one had been transferred from another province in the interval between the completion of elementary education and the commencement of secondary education, leaving one student who had spent his entire educational period at the base. This may perhaps be explained by the fact that for some army personnel who are aircraft technicians or parachute experts the base is probably the only place they could be employed for maximum utility. At the other extreme there were eleven military students who had attended ten or eleven schools during their education. When the questionnaire was constructed it was believed that no student would have attended more than ten schools; in fact, of the eleven in this group, six had

attended eleven schools, and five had attended ten schools.

Ho: 1.2 No significant difference exists between the number of provinces lived in by military and civilian students.

The number of provinces in which school was attended by military and civilian students is shown in Table VII. This distribution, which resembles that of Table VI, was also

TABLE VII

NUMBER OF PROVINCES IN WHICH SCHOOL WAS ATTENDED BY
MILITARY AND CIVILIAN STUDENTS

No. of Provinces	Military Students	Civilian Students
7	6	0
6	10	0
5	22	1
4	33	2
3	45	2
2	27	4
1	7	131
Total	150	140
Mean	3.6	1.1
Standard Deviation	1.4	0.6

$t = 19.84$

Significant at .05 level

significant, therefore null hypothesis $H_0: 1.2$ is rejected. Only one of the 140 civilian students had attended school in more than four provinces, whereas thirty-eight of the 150 military students had attended school in five or more different provinces. The situation at the other end of the scale is almost as striking, with only seven military students having attended Manitoba schools for the whole of their educational career, compared to nine civilian students who had not attended Manitoba schools exclusively.

Discussion

Students were asked to indicate the province in which each school was attended because in some cases the change of province may be more critical than the change of school. Thus, Case Number 375, who had attended six schools in six different provinces, had certainly been exposed to a greater range of curricula than Case Number 162, who had also attended six schools, but who had never left Manitoba. Europe was regarded as a province when included by the military student because, as will be seen later, military students in Europe follow the Ontario Department of Education curriculum in Department of National Defence Schools. Further, a return to a province in which the student had previously attended school was counted as an additional province. This

was done because leaving a provincial curriculum and returning after one or more years is little different from moving to a province where one has never been before. If the student happens to be between provinces where, for example, physics courses are taken for a year and then dropped for a year, he could quite easily miss the physics course in both provinces. Parents of military students reported at least three cases similar to the hypothetical case above.

III. CONCLUSION

The relative figures for schools and provinces are enlightening for both military and civilian groups. The military group was assumed to be a reasonably representative sample of the dependents of military personnel, containing as it does the children of both Army and Air Force personnel. In the high school population of military dependents approximately two-thirds of the students will have attended from four to six different schools in two to five different provinces. The figures for the civilian group are noteworthy because they indicate the stability of the rural population in an age when migration of population is a sociological phenomenon. It would be instructive if a similar survey could be made of an urban high school population, the

expectation being that the mobility rate of urban civilian students would be appreciably higher than that of the rural civilian students, although not as high as that of military students.

This chapter is concerned with the quantitative aspect of the mobility of the groups in the study. Since mobility may be considered the independent variable the correlation of mobility with other variables will also be indicated at the appropriate place in the study.

CHAPTER V

MENTAL ABILITY, AGE, DELINQUENCY, AND ACHIEVEMENT

VARIABLES FROM SCHOOL RECORDS

I. INTRODUCTION

The adverse effects of environment and experience on a group may be evident when the group is compared with respect to certain variables to another group differing in environment and experience. In the present study mental ability, as measured by the Intelligence Quotient, was chosen for control purposes, to ensure that one group was not intrinsically inferior to the other. The variables of age, as shown by the relative age distributions, delinquency, as indicated by discipline infractions, and achievement in school work were then analyzed for the military and civilian groups.

II. NULL HYPOTHESES - MENTAL ABILITY, AGE, AND DELINQUENCY

Ho: 2.1 No significant difference exists between the mean intelligence test scores of military and civilian students.

Intelligence test scores were available for 231 students of the total of 324 students in the school year 1963-1964. Unfortunately, these test scores were obtained from a

variety of group intelligence tests, such as the Otis and the California, therefore analysis and inference from these data was severely limited. The distribution of IQ for military and civilian students of all grades is given by Table VIII.

TABLE VIII

DISTRIBUTION OF IQ FOR MILITARY AND CIVILIAN GROUPS

IQ Range	Military	Civilian	Totals
120-139	20	21	41
110-119	33	30	63
90-109	46	63	109
70-89	3	15	18
Totals	102	129	231
Mean	110.2	105.9	108.5

Discussion. Because of the limiting factors indicated above the statistical significance of this IQ distribution was not computed, thus it was not possible to accept or reject the null hypothesis. It would seem likely that there is no significant difference in mental ability between the military and civilian students. The results also indicated that the mental ability of the military group was unlikely to be lower than that of the civilian group.

Ho: 2.2 No significant difference exists between the mean age of military and civilian students in the same grade.

If the mean age of the military students in a grade is significantly higher than the mean age of another group in the same grade, it could be concluded that the former groups were retarded in relation to the latter group. The mean ages of the military and civilian students in each grade are shown by Table IX. The figure for the two groups are very close, with any variations not consistent in direction.

TABLE IX

MEAN AGE BY GRADE OF MILITARY AND CIVILIAN GROUPS

	Grade IX	Grade X	Grade XI	Grade XII
Military Students	14.6(yrs)	15.6	16.6	17.5
Civilian Students	14.5	15.6	16.9	17.4

The age distribution for the total school population is given by Table X. This grouping indicates more clearly than do the separate means the relative age structure of the military and civilian groups. This distribution was not statistically significant.

TABLE X

AGE DISTRIBUTION OF MILITARY AND CIVILIAN GROUPS

	18(+)	17	16	15	14	13	Total
Military Students	8	16	34	42	42	13	155
Civilian Students	8	31	43	38	34	15	169
Total	16	47	77	80	76	28	324

$$\chi^2 = 6.52$$

Not significant at .05 level

Discussion. The null hypothesis was accepted that there is no significant age difference in the two groups. There is a tendency for the civilian students to be older than the military students, perhaps because most of the civilian students came from one or two room elementary schools where the differences in teachers and equipment are greater than for the military or urban student and may, therefore, spend additional time in the elementary grades.

Ho: 2.3 No significant difference exists between the delinquency rates of military and civilian students.

In the present study the measure of delinquency was the number of infractions of discipline severe enough to warrant action by the principal. The criterion of principal

involvement was selected because, while it was recognized that teachers have differing views on what constitutes a discipline infraction in class, it was believed that referral to the principal would not be made for petty infractions. Table XI shows the incidence of infractions by military and civilian students in the course of school year 1963-1964. Although the military students are fewer in number than the civilian students they committed three times as many infractions of discipline, a ratio which is, of course, significant, therefore the null hypothesis is rejected.

TABLE XI

DISCIPLINE INFRACTIONS OF MILITARY AND CIVILIAN STUDENTS

Delinquency	Military	Civilian	Total
Discipline Cases	21	7	28
Non-Discipline Cases	134	162	296
Total	155	169	324

$$\chi^2 = 8.83$$

Significant at .05 level

Ho: 2.4 No significant correlation exists between the number of schools attended and the delinquency of military students.

As reported in Chapter II, delinquency has been found to be significantly related to mobility. The military group in the present study showed a wide range of mobility, allowing the opportunity of investigating the relationship between delinquency and the number of schools attended. The distribution of discipline cases by the number of schools attended by the military students is given by Table XII.

TABLE XII

DISTRIBUTION OF DISCIPLINE CASES IN MILITARY GROUP BY
NUMBER OF SCHOOLS ATTENDED

Delinquency	2-5 Schools	6-11 Schools	Total
Discipline Cases	4	12	16
Non-Discipline Cases	63	71	134
Total	67	83	150

$$\chi^2 = 2.16$$

Not significant at .05 level

Discussion. The null hypothesis is accepted because the chi-square test of the distribution was not significant at the .05 level of confidence. It should be pointed out, however, that if a one-tailed instead of two-tailed test had been applied, the distribution would have been significant at the .05 level of significance. Even with the two-tailed test

there is a strong tendency for discipline infractions to be directly related to the number of schools attended.

Ho: 2.5 No significant correlation exists between the number of provinces lived in and the delinquency of military students.

It is possible to change schools frequently without leaving the provincial educational system. Interprovincial transfers, on the other hand, involve transfers between educational systems as well as transfers between schools. In Table XIII is presented the distribution of discipline cases by the number of provinces in which school was attended.

TABLE XIII

DISTRIBUTION OF DISCIPLINE CASES IN MILITARY GROUP BY THE NUMBER OF PROVINCES IN WHICH SCHOOL WAS ATTENDED

Delinquency	1-3 Provinces	4-7 Provinces	Total
Discipline Cases	5	11	16
Non-Discipline Cases	74	60	134
Total	79	71	150

$$\chi^2 = 2.35$$

Not significant at .05 level

Discussion. The distribution was not significant therefore the null hypothesis was accepted. The statements made about Ho: 2.4 were also applicable in this instance. It may be said that the distribution of Table XIII shows an apparent tendency for delinquency in the form of discipline infractions to be related to interprovincial mobility.

III. NULL HYPOTHESES - ACHIEVEMENT

The achievement of a student in school work is one of the most reliable indications of the presence of educational problems. There are various ways of measuring this achievement, such as rating by the teacher, or the writing of tests of some kind; both of these methods of measurement will be considered in this chapter. The measures of achievement on which data were available included: in Grade IX, local departmental tests and final standings assigned by the teacher; in Grade X, local departmental tests, term tests, and final standings; in Grades XI and XII, Department of Education Examinations.

Ho: 3.1 No significant difference exists between the academic achievement of military and civilian students.

Grade IX

The subjects on which Grade IX students wrote local

tests in June, 1964 were: language, social studies, mathematics, and science. The 105 students in Grade IX wrote 414 test papers, with the resultant grade distribution indicated in Table XIV. The military students had significantly better grades than the civilian students, most evident perhaps in the D or failure grade, where the failure rate of the civilian students is almost fifty percent greater than that of the military students.

TABLE XIV

DISTRIBUTION OF GRADES FOR DEPARTMENTAL TESTS IN GRADE IX
SUBJECTS

	A	B	C	D	Total
Military Students	36	76	86	37	235
Civilian Students	22	48	60	49	179
Total	58	124	146	86	414

$$\chi^2 = 8.56$$

Significant at .05 level

In grades IX and X the final standing in any subject is more important to the student than grades received on departmental tests or term tests. The final standing assigned by the teacher determines whether the student repeats the year or is promoted to the next grade. The final standing is

therefore based, or is presumably based, on the whole year's work, including results of term and departmental tests. The distribution of final standing grades assigned to Grade IX students is shown by Table XV. There is no significant difference in the distribution of grades between the two groups.

TABLE XV

FINAL STANDING ON GRADE IX SUBJECTS OF MILITARY AND
CIVILIAN STUDENTS

Achievement	Military Students	Civilian Students	Total
Pass	412	313	725
Fail	60	55	115
Total	472	368	840

$$\chi^2 = .84$$

Not significant at .05 level

Discussion. When the Grade IX data are considered the acceptance or rejection of the null hypothesis depends on the measure of achievement used for comparison. Contrary to expectation the Grade IX military students made significantly better grades on departmental tests. The superior performance of the military students on these tests may be explained by differences in the elementary school environment of the two groups. The majority of the civilians, as previously noted,

come to the collegiate from rural elementary schools, often of one or two rooms. The military students, however, in most cases have graduated from the large, well-equipped elementary school on the military base.

When final standing is considered the null hypothesis must be accepted. Since the final standing grades are assigned on the basis of the year's work, which includes the departmental tests, the relationship between final standing grades and departmental test grades might be expected to be linear, or reasonably so. A summary of these relationships for the military and civilian students is given by Table XVI.

TABLE XVI

RELATIONSHIP BETWEEN DEPARTMENTAL TEST GRADES AND FINAL
STANDING GRADES FOR MILITARY AND CIVILIAN STUDENTS
IN GRADE IX

	χ^2	Probability
Military Students	1.26	NS
Civilian Students	11.9	.01

It is evident that the military students did not improve significantly on the final standings, whereas the improvement of the civilian students was highly significant. Where

The results of term tests were available only for Grade X students, but they are analyzed as an additional basis for comparison of the military and civilian students. The distribution of grades on the 1413 papers written is given by Table XVIII. The failure rate of military students on these tests is almost double that of the civilian students, although their total of papers written is only slightly greater.

TABLE XVIII

TERM TEST RESULTS FOR MILITARY AND CIVILIAN GRADE X STUDENTS

Achievement	Military Students	Civilian Students	Total
Pass	496	582	1078
Fail	217	118	335
Total	713	700	1413

$$\chi^2 = 38.5$$

Significant at .05 level

Final standing grades were assigned on seven subjects in Grade X. The distribution of these grades for military and civilian students is shown by Table XIX. This distribution was significant, the ratio of passing to failing grades being only 3.5:1 for the military students, compared to almost 6:1 for the civilian students.

TABLE XIX

FINAL STANDING ON GRADE X SUBJECTS OF MILITARY AND
CIVILIAN STUDENTS

Achievement	Military Students	Civilian Students	Total
Pass	273	331	604
Fail	80	58	138
Total	353	389	742

$$\chi^2 = 7.12$$

Significant at .05 level

Discussion. On the basis of the achievement data available for Grade X students null hypothesis H_0 : 3.1 would be rejected. On all three measures of achievement of military students made significantly more failing grades than the civilian students, this condition being greatest in the term test results. It is noted that, unlike the Grade IX situation, where a significant superiority of the military students in the departmental test grades became non-significant in the final standing grades, a significant superiority of civilian students on Grade X departmental tests becomes more highly significant in the final standing distribution. This occurrence, together with the term tests data, which showed the most significant superiority of the civilian students, suggests that there are subjective factors present

which tend to depress the achievement of the military students relative to the civilian students, at least where teacher ratings are concerned.

Grade XI

The provincial Department of Education Examinations written in Grades XI and XII were in effect the only external measures of the relative achievement of military and civilian students. These examinations, written in June, 1964, were designed and marked under the jurisdiction of the Manitoba High School Examination Board.

The subjects written by Grade XI students were: literature, composition, history, mathematics, chemistry, physics, biology and French. In an urban area there would be a greater range of options available, but the curriculum at the collegiate was necessarily restricted in scope. The distribution of grades on the 425 Grade XI papers written is given by Table XX. This distribution is significant, but in favor of the military students, not the civilian students. The percentage pass results in each subject were available for all students in Manitoba. In Table XXI they are reproduced to illustrate the marked variation in individual subjects between the military students, the civilian students, and the province as a whole. Although the civilian students

TABLE XX

RESULTS OF GRADE XI DEPARTMENTAL EXAMINATIONS FOR
MILITARY AND CIVILIAN STUDENTS

Achievement	Military Students	Civilian Students	Total
Pass	135	182	317
Fail	40	68	108
Total	175	250	425

$$\chi^2 = 4.09$$

Significant at .05 level

TABLE XXI

PERCENTAGE PASS RESULTS FOR MILITARY, CIVILIAN AND PROVINCE
OF MANITOBA STUDENTS BASED ON JUNE 1964 GRADE XI DEPARTMENTAL
EXAMINATIONS

Subject	Military Students	Civilian Students	All Students in Manitoba
Literature	80.0	73.9	66.8
Composition	74.0	75.6	74.1
History	72.8	73.0	73.7
Mathematics	77.8	65.8	79.5
Chemistry	87.5	80.6	70.4
Physics	94.8	87.6	75.9
Biology	62.5	34.8	68.0
French	63.0	100.0	62.2

had significantly more failing grades than the military students their pass percentage was greater in three subjects. It is also noteworthy that the civilian students exceeded the provincial pass rate in five subjects, whereas the military students exceeded the provincial percentage in only four subjects.

Discussion. In the only objective measures of achievement considered at this stage of the study the military students achievement, as measured by passing grades obtained, was significantly superior to that of the civilian students. There are several possible explanations for this result: the military students of lesser ability may have dropped out before Grade XI was reached, or they may have been forced to repeat Grade X, as the Grade X results might indicate; another possibility is that the military student was not so inferior as the Grade X results indicated, and that the Grade XI examinations allowed less possibility for bias or discrimination to affect the results.

Grade XII

The Grade XII students wrote papers in English, mathematics, chemistry, physics, French, history and biology. The distribution of grades on the 178 papers written was as shown

by Table XII. In this instance the distribution of grades is almost identical. When the individual subjects are considered, there is again a wide variation, as shown by Table XXIII, wherein the pass percentage achieved by military and civilian students are compared to the provincial figures for each subject.

TABLE XXII

RESULTS OF GRADE XII DEPARTMENTAL EXAMINATIONS FOR
MILITARY AND CIVILIAN STUDENTS

Achievement	Military Students	Civilian Students	Total
Pass	60	58	118
Fail	31	29	60
Total	91	87	178

$$\chi^2 = .02$$

Not significant at .05 level

Summary of Achievement Data

Military students made significantly more passing grades in Grade IX tests than civilian students, although this superiority disappeared in the final standings assigned on the work of the whole year, including tests. In Grade X civilian students made significantly greater number of passing grades than the military students, not only in term and local

TABLE XXIII

PERCENTAGE PASS RESULTS FOR MILITARY, CIVILIAN AND PROVINCE
OF MANITOBA STUDENTS BASED ON JUNE 1964 GRADE XII DEPARTMENTAL
EXAMINATIONS

Subject	Military Students	Civilian Students	All Students in Manitoba
English	57.9	57.1	64.4
Mathematics	88.9	84.6	74.4
Chemistry	44.4	77.0	68.7
Physics	58.8	55.6	74.4
French	75.0	72.3	77.2
History	100.0	88.9	67.3
Biology	66.7	60.0	86.1

tests, but also on final standing grades. Military students had a significant superiority in passing grades in Grade XI Department of Education Examinations, whereas on the Grade XII Department of Education Examinations there was no significant difference between the achievement of military and civilian students.

IV. NULL HYPOTHESES - MOBILITY AND ACHIEVEMENT

HO: 3.2 No significant correlation exists between the number of schools attended and the academic achievement of military students.

The distribution of passing and failing grades on the various measures of achievement was obtained for all military students for whom data on mobility were available. This was done for two reasons: the extremely low mobility rate of the civilian students, and because the study is primarily concerned with the effects of mobility on the military dependent attending high school. The relationship between the number of schools attended and the academic achievement of the military group is given by Table XXIV. It is apparent that there

TABLE XXIV

RELATIONSHIP IN MILITARY GROUP BETWEEN ACADEMIC ACHIEVEMENT
AND NUMBER OF SCHOOLS ATTENDED IN EDUCATIONAL CAREER

Achievement	2-5 schools	6-11 schools	Total
Pass	411	423	834
Fail	93	135	228
Total	504	558	1062

$$\chi^2 = 4.24$$

$$\bar{C} = .09$$

Significant at .05 level

is a greater concentration of failures in the high-mobility group, the distribution being significant at the .05 level. The coefficient of contingency value of .09 appears small, but this value is also significant, since it is derived from

the chi-square.

It was important for the purposes of the study to determine any differential effect of mobility on the sexes. In Tables XXV and XXVI the relationship between achievement and

TABLE XXV

RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND NUMBER
OF SCHOOLS ATTENDED BY MILITARY MALES

Achievement	2-5 schools	6-11 schools	Total
Pass	189	176	365
Fail	44	84	128
Total	233	260	493

$$\chi^2 = 11.5$$

$$\bar{C} = .23$$

Significant at .05 level

TABLE XXVI

RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND NUMBER
OF SCHOOLS ATTENDED BY MILITARY FEMALES

Achievement	2-5 schools	6-11 schools	Total
Pass	222	247	469
Fail	49	51	100
Total	271	298	569

$$\chi^2 = .10$$

Not significant at .05 level

the number of schools attended may be compared for the male and female components of the military group. It is immediately obvious that there is considerable variation in the two distributions; the correlation for the males is very significant, whereas that for the females is negligible.

Discussion. The null hypothesis as stated is rejected. However, further analysis of the military student group shows that the correlation between achievement and schools attended for the male component is high enough to give a significant figure for the whole military group, although the figure for the female students is very low. A possible explanation for this finding is that the males are more affected by the social effects of frequent moving than the females. The boys have to compete for the attentions of newly-met girls, whereas the girls have a more passive role, with less stress involved and less influence on achievement.

Ho: 3.3 No significant correlation exists between the number of provinces lived in and the academic achievement of military students.

It was expected that the change of province would have a greater effect on academic achievement than the actual number of schools attended. This view was taken because of the

changes in curriculum and teaching methods experienced when moving from one province to another, whereas change of school within a province does not have this disadvantage. The relationship between achievement and the number of provinces lived in is given in Table XXVII. The distribution was not

TABLE XXVII

RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND NUMBER OF PROVINCES IN WHICH SCHOOL WAS ATTENDED BY MILITARY STUDENTS

Achievement	1-3 Provinces	4-7 Provinces	Total
Pass	435	399	834
Fail	123	105	228
Total	558	504	1062

$$\chi^2 = .38$$

Not significant at .05 level

significant at the .05 level of confidence, there being a high probability that the results were mere chance.

The effects of a high interprovincial mobility differ for males and females, as shown by Tables XXVIII and XXIX, which present the relationship between achievement and interprovincial mobility for male and female military students.

TABLE XXVIII

RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND NUMBER OF
PROVINCES LIVED IN BY MILITARY MALES

Achievement	1-3 Provinces	4-7 Provinces	Total
Pass	201	164	365
Fail	63	65	128
Total	264	229	493

$$\chi^2 = 1.37$$

Not significant at .05 level

TABLE XXIX

RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND NUMBER OF
PROVINCES LIVED IN BY MILITARY FEMALES

Achievement	1-3 Provinces	4-7 Provinces	Total
Pass	234	235	469
Fail	60	40	100
Total	294	275	569

$$\chi^2 = 3.37$$

Not significant at .05 level.

Discussion. There is a surprising reversal of the results shown in Tables XXV and XXVI. The correlation for male students is no longer significant, whereas that for female students is very nearly significant. The differences between the sexes are confirmed when the achievement of males and females of high mobility is compared. A chi-square test of

males and females who had attended 6-11 schools gave a chi-square value of 17.33, significant at the .05 level of female superior achievement. Similarly, a chi-square test of the male and female students who had attended school in 4-7 provinces gave a chi-square value of 14.03, almost equally significant of female superiority. Despite the difference between the sexes there is no significant correlation between achievement and number of provinces lived in, therefore null hypothesis $H_0: 3.3$ is accepted.

V. CONCLUSIONS

There was no significant difference in mental ability between the military and civilian students, although the data indicated that the military group was possibly of higher intelligence. There was no significant difference in age between the two groups, any minor differences in the separate grades being inconsistent in direction.

The incidence of delinquency in the form of discipline infractions was significantly greater for the military students than the civilian students. There was no significant correlation between delinquency and mobility, either in the form of interprovincial or intraprovincial transfers, although in each case there was a tendency for such a

relationship to be present.

The data on achievement were inconclusive; in Grade IX and XI the military students were superior, in Grade X the civilian students, and in Grade XII there was no difference. There was a possibility in Grades IX and X that the results were subjectively influenced by bias, but this could not be conclusively proved.

There was a significant positive correlation for military students between a high rate of school mobility and achievement in the form of passing grades. Contrary to expectation the correlation between achievement and interprovincial mobility was almost negligible. Among military students of high mobility, females made significantly better grades than males. This was true both for mobility between schools and mobility between provinces, indicating, as has been noted before, that the effects of mobility are more serious for the military male student than the female student.

CHAPTER VI

STUDENT PROBLEMS AND EXTRA CURRICULAR ACTIVITIES

I. INTRODUCTION

The first three questions of the student questionnaire¹ called for factual answers which were readily recorded and analyzed. They added to the bulk of the information acquired from school records concerning the personal and educational aspects of the students who were the subjects of the study. However, this was felt to be insufficient; some method was required whereby students could communicate what they felt were problems which had adversely affected their educational careers. To this end question number Four was included on the questionnaire; "What factors, if any, do you feel have had an unfavorable effect on your education?" This question was deliberately made open-ended because in the check-off type of response, such as question two on the questionnaire concerning extra-curricular activities, it was felt there might be a tendency to select problems because they were specified for the student on the paper. In the open-ended question the student has to decide in his own mind what

¹Appendix D.

the answer is. A further advantage of this type of question is that it may produce information which was not foreseen by the compiler of the questionnaire. Finally, it gives an opportunity for the student to put his views on education in his own words.

Differences caused by variations in experience and environment in the lives of military and civilian students may be reflected in the social activity of the students. Not only is the mobility of the military student in contrast to the stability of the civilian student, but their social life outside the school is markedly different. One of the measures of social activity obtained through the questionnaire was the extent of participation in extra-curricular school activities.

II. NULL HYPOTHESES - EDUCATIONAL PROBLEMS

Ho: 4.1 No significant difference exists between the number of educational problems reported by military and civilian students.

The 290 students who completed the questionnaire reported a total of 205 factors which had adversely affected their education. The distribution of these factors for military and civilian students is given by Table XXX. The one

sample chi-square test of this distribution was significant at the .05 level of confidence.

TABLE XXX

FACTORS REPORTED TO HAVE ADVERSE EFFECT ON THE EDUCATION
OF MILITARY AND CIVILIAN STUDENTS

	Military	Civilian	Total
Factors Reported	120	85	205
Number of Students	150	140	290

$\chi^2 = 3.87$
Significant at .05 level

Discussion. The null hypothesis is rejected in favor of the alternate hypothesis that military and civilian students differ in the number of educational problems they have. This finding does not reveal any information on the kind of problems reported by the two groups.

Ho: 4.2 No significant difference exists between the type of educational problem reported by military and civilian students.

Not surprisingly, there was a wide range of factors which students felt had adversely affected their education. This wide range may be grouped into three main categories:

educational, home, and social factors. The relative distribution of these factors is summarized in Table XXXi for military and civilian students. The chi-square test was applied to the sub-totals of the educational, home, and social categories. The military group reported significantly more factors concerned with the home than the civilian group, and there was a strong tendency for civilian students to have more problems of a social nature than the military students. However, within each category there was also considerable variation, as indicated by the following analysis.

Educational. When magnitude of response is considered the military and civilian students were closest in accord in selecting "teachers" as an unfavorable influence on their education, this being first choice for the civilian group and second choice for the military group. This response is not without its humorous aspects, but some of the comments make it obvious that students were not being facetious. Comments ranged in specificity; some merely said "teachers" or "the teacher"; others were more explicit, such as "the literature teacher"; quite a number were more specific and laconic, giving the response "Mr. So-and-So"! However, most of the students' responses in this category criticized teachers in two main respects: 1) poor teaching, including lack of discipline

TABLE XXXI

SPECIFIC FACTORS HAVING AN UNFAVORABLE EFFECT ON THE
EDUCATION OF MILITARY AND CIVILIAN STUDENTS, AS
REPORTED BY STUDENTS

Factors	Military Students	Civilian Students	Total	χ^2
<u>Educational</u>				
Curriculum	14	2	16	
Teachers	34	48	82	
Total	48	50	98	.38
<u>Home</u>				
Moving	57	3	60	
Home Conditions	3	9	12	
Television	3	6	9	
Total	63	18	81	21.8 *
<u>Social</u>				
Extra-curricular	3	3	6	
Other students	6	14	20	
Total	9	17	26	3.1
Grand Total	120	85	205	

* Significant at .05 level.

enforcement, boring lessons, and inadequate knowledge of subject matter; 2) discrimination by teachers against individuals or groups of students. A typical comment of the first type was:

Teachers that cannot handle their classroom, or keep the class quiet, especially during a study period. I also think that some teachers should give notes and not let the class discussions develop into a free-for-all.

Comments concerning discrimination were often quite bitter, as from the student who complained that "the principal of my last school treated Air Force kids as inferiors and like dogs." Although criticism of teachers was ranked first by civilian students and second by military students, there were important differences between the two groups. The civilian group, with a total of 85 factors from 140 students, used more than half of these in criticizing teachers in some way, whereas the military group did so only thirty-four times out of a total of 120 responses from 150 students who completed the questionnaire, possibly due to a more tolerant attitude on the part of the military student as a result of his travels.

Various aspects of curriculum deficiency were third in magnitude of the problems recorded by the military students. This was not unexpected as they have undoubtedly had

greater experience with numerous curricula than the civilian students. Many complaints about curriculum were concerned with the fact that a subject could be started in one province and not be available in the new province. As one student put it, "I took Latin in Quebec for two years as my foreign language, and now that I'm here I can't take it any more."

Comments on curriculum were actually more numerous than Table XXI indicates, because many comments about moving also made passing reference to curriculum matters.

The dearth of the civilian students' comments on curriculum was unexpected, since the curriculum at the Collegiate was obviously restricted in scope; for example, only one foreign language was offered in the university entrance course. A probable reason for the lack of comments by civilian students is that they do not realize that they have a curriculum problem at the Collegiate, because they have spent their lives in a country environment where such a curriculum is not considered deficient.

Home Environment. The most numerous problem raised by military students, as shown by fifty-seven responses out of a total of 120, was moving in its various aspects, from school to school and from province to province. These comments ranged from a short "too much moving" to this rueful analysis

made by a military Grade XII female student:

Having moved about a good deal during my educational career I feel I have not received as good an education as I may have had if I had been to only one school. Somewhere in my schooling I have missed the basic skills, which have hindered me from gaining a firmer standing for future grades. I know that if I had not had a good teacher in Grade Six I would not be where I am today, for I found it very hard to adjust from an Ontario to a Manitoba standard of education. Changing from school to school is an unnecessary worry for the student, who wonders if she'll make the grade or not. I feel this would not be such a problem if there were a standardized system of education.

The commentator was in her eleventh school in twelve years: four in Manitoba, preceded by two in Germany, two in Ontario, and three in British Columbia.

Home conditions and 'television' were listed separately in Table XXXI because this was how they were reported by the students. Students evidently felt that watching too much television was separate from home conditions. Complaints about home conditions ranged from the distance of the home from school to lack of a good study environment. Only six out of 120 responses from military students were concerned with home conditions and television, compared to fifteen out of 85 civilian responses.

Social. The comments on social matters would be classified in two categories: extra-curricular activities and other students. A typical comment concerning activities is

the following, made by a grade XI military female student:

My education was affected unfavourably by having too many outside activities -- dances, shows, art class, decorating committee, chapel teens, and going to my friend's house. Really, I think my grades are quite suitable anyways.

Evidently she felt she had not been affected as unfavorably as she might have been! The extent of extra-curricular activity in the present-day high school is often criticized as being detrimental to students progress. Yet only six students out of a total sample of 290 students felt that these activities adversely affected their education.

Comments concerning other students were made by fourteen civilian and six military students. These comments were mainly concerned with: adjustment to new school environment, students who disrupted classes, and interaction of the sexes. The types of comment made ranged from a terse "Boys!" from a Grade XII girl to a Grade X boy's "too much distraction by girls in class." One student's problem included here, although it obviously involves many other factors was that of a Grade IX boy who wrote: "The only unfavorable effect on my education is that I am an Indian, and the only one."

III. NULL-HYPOTHESES - EXTRA-CURRICULAR ACTIVITIES

Military and civilian students are together in school for approximately 200 school days of six hour each per year. For the remainder of their waking hours, or at least three times longer than they spend in school, they live in different environments.

Four-fifths of the civilian students live in the surrounding countryside, with the remainder from the small rural town in which the collegiate was situated. For the adolescent on a farm social life is restricted by ownership, or access to an automobile. In addition to extra-curricular school activities, other pursuits available include: boys pipe band, youth orchestra, 4H club, movies, hunting, fishing, and dating the opposite sex.

The military students live in the permanent married quarters area adjacent to the military base. This area is, in effect, a self-contained suburb with its own retail, entertainment, and social institutions. One of the most marked differences between the two groups is that the military students live in a self-contained community within a few blocks of each other. The students belong to a Teen Club, which has its own clubhouse and promotes dances and socials. In addition the students are eligible to participate in the general

recreational facilities of the base. These include: movie theatre, skating rink, curling rink, swimming pool, rifle club, gymnasium, and reading library. These facilities are not available to civilian students except as guests of the military students.

Ho: 5.1 No significant difference exists between the amount of extra-curricular participation of military and civilian students.

The frequency of participation in each extra-curricular activity by military and civilian students is shown by Table XXXII. The thirteen activities listed include nine which appeared on the questionnaire and four volunteered by students: track sports, library, social committee, and decorating committee. The distribution is not significant, therefore, the null hypothesis is accepted.

Discussion. It is noteworthy that military students were well represented in all aspects of extra-curricular activity, both sporting and social. Although they took less part on the whole in school sporting activities than the civilian students, it should be noted that the military students had access to sporting facilities, such as volleyball, available in the base gymnasium. The strong showing of the

TABLE XXXII

EXTRA-CURRICULAR ACTIVITIES PARTICIPATED IN BY MILITARY
AND CIVILIAN STUDENTS

Activity	Military Students	Civilian Students	Total
Track Sports	23	32	55
Volleyball	11	31	44
Drama Club	24	14	38
Biology Club	21	15	36
Student Council	16	13	29
Football	12	13	25
Yearbook	11	10	21
Decorating Committee	11	3	14
Library	6	5	11
Cheerleaders	6	5	11
Social Committee	3	6	9
Science Club	2	5	7
Debating Club	2	4	6
Total	148	156	304

$$\chi^2 = 1.32$$

Not significant at .05 level

military students in such activities of high prestige as Student Council and Yearbook may at first seem surprising. However, these are elected positions, and inevitably the military students will ensure an adequate representation of their military peers in such positions.

Ho: 5.2 No significant difference exists between the participation of males and females in extra-curricular activities.

The extent to which males and females differed in their participation in extra-curricular activity is shown in Table XXXIII. There was no significant difference in participation in extra-curricular school activities between the male and female components of the military and civilian groups, therefore, the null hypothesis is accepted.

TABLE XXXIII

DISTRIBUTION OF EXTRA-CURRICULAR ACTIVITIES OF MALE AND FEMALE STUDENTS

	Male Students	Female Students	Total	χ^2
<u>Military</u>				
E-C Activities	61	87	148	1.75
<u>Civilian</u>				
E-C Activities	70	86	156	.92

Ho: 5.3 No significant difference exists between the length of time school is attended and extra-curricular activity.

The distribution of activities by grade in relation to the number of students who completed questionnaires is given by Table XXXIV. There is a fairly steady increase in the

TABLE XXXIV

DISTRIBUTION OF EXTRA-CURRICULAR ACTIVITIES FOR MILITARY AND CIVILIAN RESPONDENTS BY GRADE

	Military Students	(N)	Civilian Students	(N)	Total
Grade IX	40	(43)	20	(29)	60
Grade X	38	(43)	34	(36)	72
Grade XI	37	(37)	49	(42)	86
Grade XII	33	(27)	53	(33)	86
Total	148	(150)	156	(140)	304

$$\chi^2 = 1.11$$

Not significant at .05 level.

relative amount of extra-curricular activity participated in by each student. This increase is almost linear in the case of the civilian student, as can be more readily seen in the graphical representation at Figure 1. For the military students there is a slight decrease in Grade X, followed by small increases in Grades XI and XII. The ratio of extra-curricular

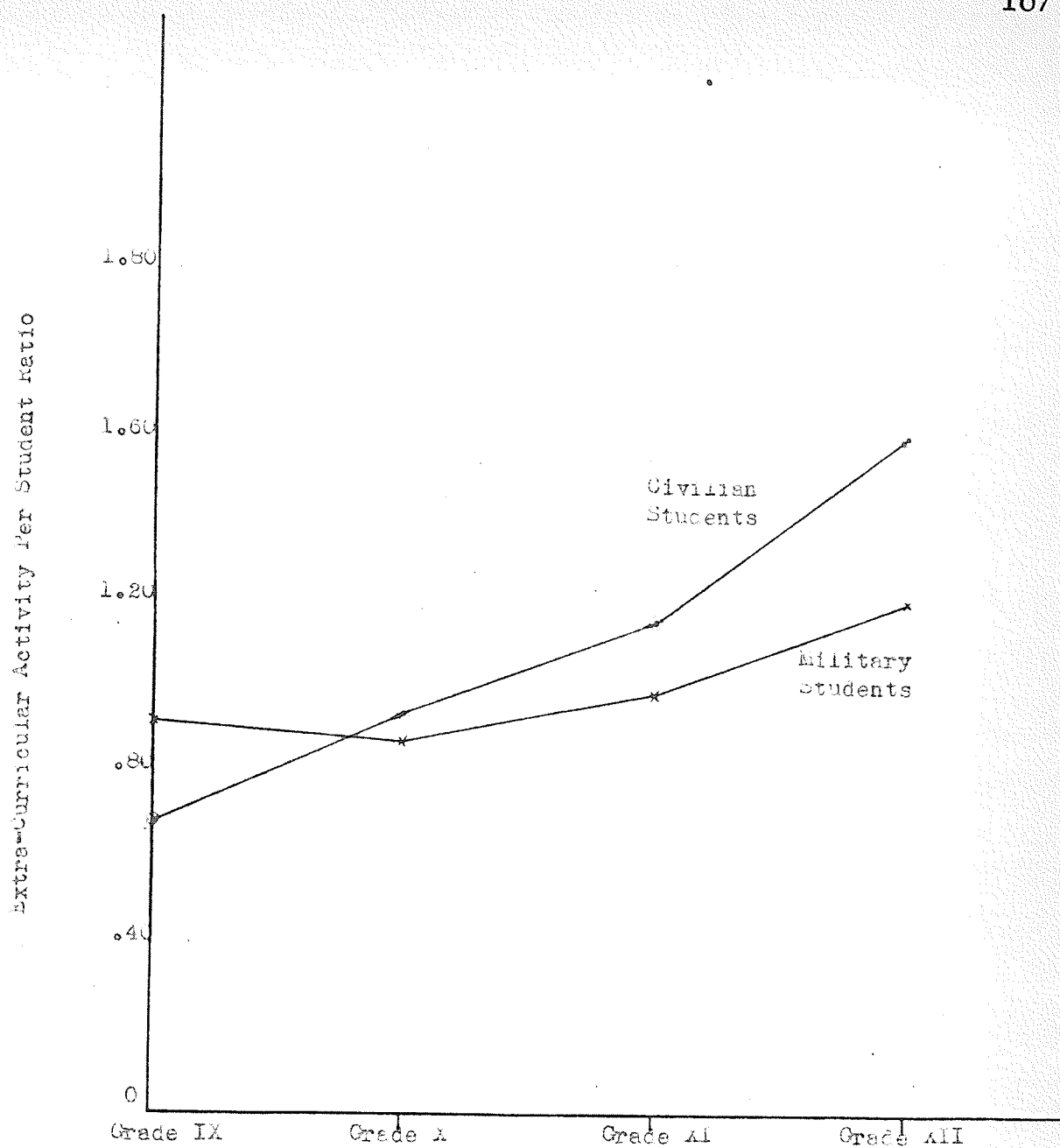


FIGURE 1

EXTENT OF EXTRA-CURRICULAR ACTIVITY BY
GRADE FOR MILITARY AND CIVILIAN STUDENTS

per civilian student increased from .69 in Grade IX to 1.61 in Grade XII, an increase which was almost three times greater than the increase for the military student from .93 in Grade IX to 1.22 in Grade XII.

The effect of the volume of new students on the extra-curricular activity is indicated by Table XXXV. When the

TABLE XXXV

EXTRA-CURRICULAR ACTIVITIES OF STUDENTS WHO WERE NEW TO THE COLLEGIATE AND THOSE WHO HAD ATTENDED FOR AT LEAST ONE YEAR

	New Comers	One or More Yrs.	Total	x^2
<u>All Students</u>				
E-C Activities	91	213	304	
No. of Students	112	118	290	9.37 *
<u>Military Students</u>				
E-C Activities	70	78	148	
No. of Students	80	70	150	2.09
<u>Civilian Students</u>				
E-C Activities	21	135	156	
No. of Students	32	108	140	8.62 *

* Significant at .05 level.

whole student population is considered the difference between school newcomers and school veterans is very marked. On further analysis this significant difference is seen to be

caused by the civilian students, whereas the distribution for the military students was not significant.

Discussion. It is perhaps not too surprising that there is an increase in extra-curricular activity with time spent in school. One reason is that positions such as Year-book and Student Council are more readily filled by the more mature student. Further, the student who stays in school finds his confidence and social maturity increasing with familiarity of the school environment. When the students start high school in Grade IX they are all newcomers, but the military students have the advantage that most of them were together in Grade VIII of the Department of National Defence School on the base. The civilian students in Grade IX were in a different position; most of them came to the collegiate from small rural elementary schools.

IV. CONCLUSIONS

Military students reported a significantly greater number of educational problems, in terms of factors which they felt had adversely affected their education, than did civilian students. There was wide variation of the kind of educational problem reported with the military students having more problems connected with home factors, whereas the

civilian group had more problems of a social nature.

There was no significant difference in the amount of extra-curricular activity of both groups. This was also true for the male and female components of both groups.

There was a significant correlation between the length of time spent in school by civilian students and the extent of their extra-curricular activity. This relationship was not significant for the military students, indicating the effect of the volume of new students introduced each year into the military group.

CHAPTER VII

SOCIOMETRIC CHOICES OF CIVILIAN AND MILITARY STUDENTS

I. INTRODUCTION

The military and civilian groups studied came from different educational and social environments. However, they did spend a great deal of time together in the same classrooms and at the same school activities; interaction between the two groups was inevitable. It was hypothesized that each group would generally prefer the members of their own group to the members of the other group, this tendency being greatest at the beginning of their association and lessening with progress through the grades.

Part IV of the questionnaire asked the question: "If working on a class project which two members of your class would you most like to work with?" Although the responses were labeled 'a' and 'b' the student was not asked to place them in order of preference. Probably many students did put them in order of choice, as it is natural to propose your best selection first, followed by your next choice. For the purposes of this study the order of choice was not considered; the information desired was the extent to which military and civilian students made choices from their own or the other

group. It is not claimed, of course, that these choices represent the student's best friends; this could have been made the criterion of choice, but, as noted in the earlier discussion of the sociogram, a more specific criterion is recommended.

The choices of every student who completed a questionnaire can be seen in the tables of original data for each grade in Appendix A. In all cases this information appears in the last column, the M-C designating the choices of that student for military, civilian or both. This information would enable sociograms to have been constructed for those classes in which a high proportion of the students completed the questionnaire. However, only the sociograms for a Grade IX class and a Grade XII class will be given to indicate differences, if any, between the grades. There was purposely no restriction on which sex could be chosen, as the extent to which the opposite sex was chosen was of interest in analyzing the social interaction of the classroom.

II. NULL HYPOTHESES - GENERAL SOCIOMETRIC ASSOCIATION

Ho: 6.1 No significant difference exists between the sociometric choices of military and civilian students.

The distribution of sociometric choices made by the 290 students who completed the questionnaire is shown in

Table XXXVI. Of the total of 580 choices made, 375 were made within the student's own group. This distribution is, of course, highly significant. Nevertheless, the number of choices made by each group from within the other group is still considerable.

TABLE XXXVI

SOCIOMETRIC CHOICES OF MILITARY AND CIVILIAN STUDENTS

Respondents	Military Choice	Civilian Choice	Total
Military Students	191	109	300
Civilian Students	96	184	280
Total	287	293	580

$$\chi^2 = 51.0$$

Significant at .05 level

Ho: 6.2 No significant difference exists between the sociometric choices made by male and female students.

The distribution of choices made by the male and female components of military and civilian groups is shown in Table XXXVII. Although there was a tendency for the civilian female students to make more choices in their own group than the male civilian students. There was no significant

difference in the choice patterns of male and female students.

TABLE XXXVII

SOCIOMETRIC CHOICES OF MALE AND FEMALE STUDENTS

Respondents	Military Choices	Civilian Choices	Total	χ^2
<u>Military Students</u>				
Male	89	53	142	
Female	102	56	158	
Total	191	109	300	.11
<u>Civilian Students</u>				
Male	50	86	136	
Female/	46	98	144	
Total	96	184	280	.73

Discussion. There was a significant preference by each group for the members of their own group, therefore null hypothesis $H_0: 6.1$ is rejected. The existence of considerable interaction between the military and civilian groups is indicated, however, by the allotment of over one third of the available choices to members of the other group. It would appear that the out-of-school environment has greater influence on sociometric choice than the school environment. The possibility of a difference in sociometric choice pattern of male and female students was not statistically upheld, leading to the acceptance of null hypothesis $H_0: 6.2$.

III. NULL HYPOTHESES - SOCIOMETRIC CHOICE AND LENGTH OF ATTENDANCE

Ho: 6.3 No significant correlation exists between socio-metric choice and length of collegiate attendance in the military group.

As with extra-curricular activity, it was thought feasible that there would be a difference between the socio-metric choices of newcomers to the collegiate and the choices of those who had attended the collegiate for one or more years previous to administration of the questionnaire. Table XXXVIII gives this comparison for the military students in the study. The ratio of military to civilian choices in

TABLE XXXVIII

SOCIOMETRIC CHOICES IN MILITARY GROUP FOR NEW STUDENTS AND STUDENTS WITH ONE OR MORE YEARS ATTENDANCE

Respondents	Military Choices	Civilian Choices	Total
Newcomers.	111	49	160
More Than 1 Year	80	60	140
Total	191	109	300

$$\chi^2 = 4.69$$

$$\bar{C} = .18$$

Significant at .05 level.

the newcomer group was 8:5, compared to a ratio of 8:6 for those military students who had attended the collegiate for one or more years. This distribution was significant at the .05 level of confidence, therefore the null hypothesis is rejected.

Ho: 6.4 No significant correlation exists between sociometric choices and length of collegiate attendance in the civilian group.

When the same relationship was considered for the civilian students the findings were surprising, as shown by Table XXXIX. In the civilian group the preference for its own members rises from a ratio of 4:3 for newcomers to a ratio of

TABLE XXXIX

SOCIOMETRIC CHOICES IN CIVILIAN GROUP FOR NEW STUDENTS AND STUDENTS WITH ONE OR MORE YEARS ATTENDANCE

Respondents	Military Choices	Civilian Choices	Total
Newcomers	27	37	64
More Than 1 Year	69	147	216
Total	96	184	280

$$\chi^2 = 2.26$$

Not significant at .05 level.

more than 2:1 for students with previous attendance. This distribution was not significant, therefore the null hypothesis is accepted.

Discussion. A possible explanation for the differences between the groups with respect to sociometric choice and attendance may be found in the differing environments of the students. As previously noted, the new military students were a much more cohesive body than the new civilian students, mainly because most of them had attended Grade VIII in the Department of National Defence school on the base. The new civilian students, on the other hand, were mainly from small rural schools, and consequently were unfamiliar with most of the other students.

This question may be further explored by an analysis of the sociometric choices made by military and civilian students in each grade, as shown in Table XL. The initial high ratio of preference by the military students for their own group changes with progression through the grades. Conversely, a low ratio of preference by the civilian students for their own group changes with the grade level. The symmetrical nature of the respective changes in preference is best seen by a graphical representation in Figure 2 of the data of Table XL.

TABLE XL

SOCIOMETRIC CHOICES MADE BY MILITARY AND CIVILIAN STUDENTS
BY GRADE

Respondents		Military Choices	Civilian Choices	Total
Grade IX	Military	62	24	86
	Civilian	25	33	58
Grade X	Military	57	29	86
	Civilian	25	47	72
Grade XI	Military	40	34	74
	Civilian	25	59	84
Grade XII	Military	32	22	54
	Civilian	21	45	66
Total		287	293	580

The reason for the different choice-ratios in Grade IX has been given above as the differences in homogeneity of the two groups. The almost linear increase and decrease, for civilian and military students respectively, is obviously caused by more complex factors. The increase of civilian preference for civilian students is most probably explained by the initially more fragmented groups of civilian students becoming more cohesive through fellowship of their schoolmates and experience of the collegiate environment.

The decrease in preference of the military students for their own group is not so readily explicable. Admittedly,

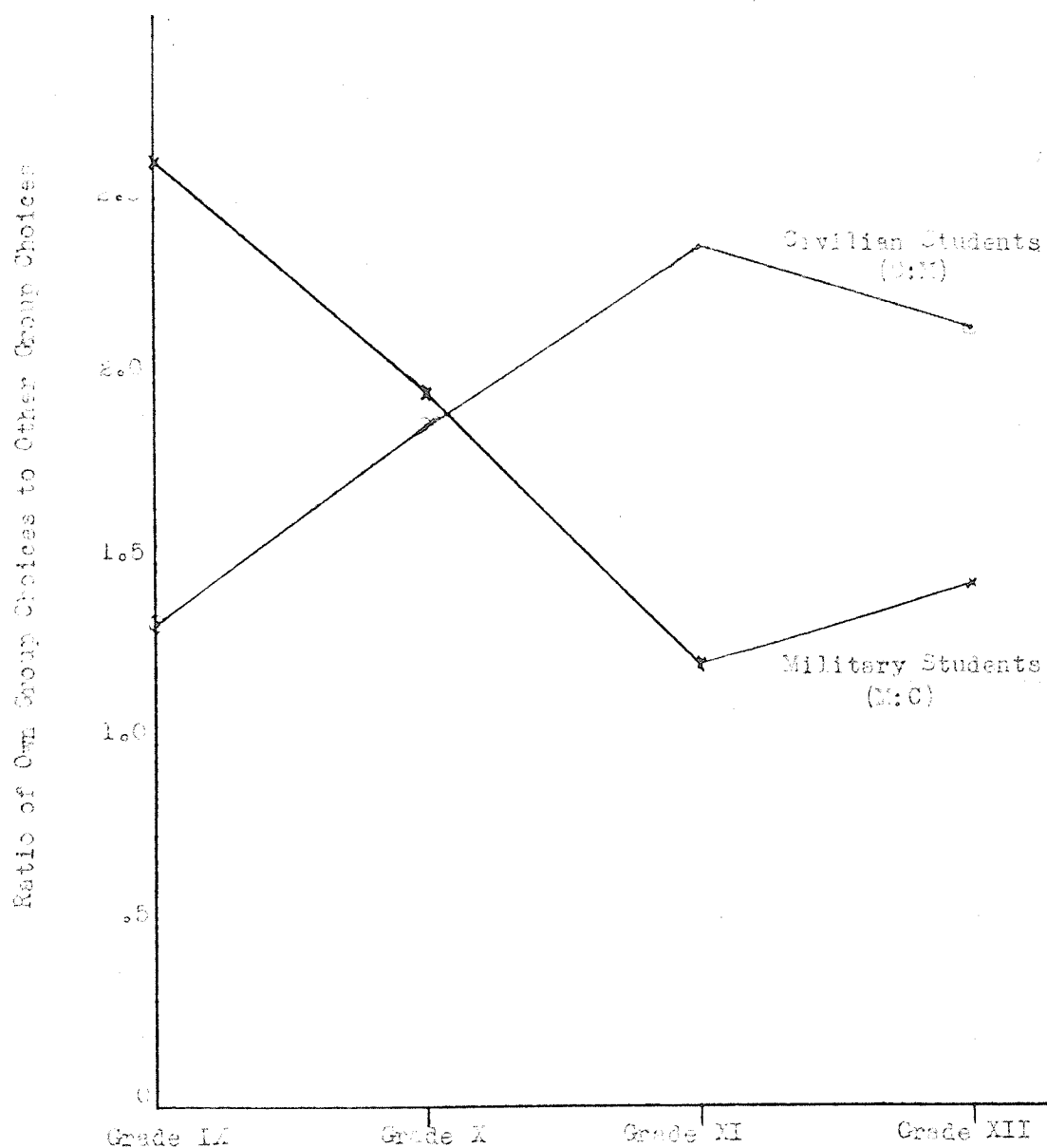


FIGURE 2

PROPORTION OF CHOICES MADE IN OWN GROUP
TO CHOICES MADE IN OTHER GROUP FOR
MILITARY AND CIVILIAN STUDENTS

they do not have the unbroken length of stay enjoyed by the civilian students during their collegiate careers; the military students who begin in Grade IX are so depleted each year by transfers that by Grade XII few of the original Grade IX group would remain. Another possible reason for the disparity of the choice pattern of the two groups is that the civilian students become prejudiced against military students, whereas the military students, because of their experience of making new friends in new situations, accept the civilian students more easily with the passage of time.

IV. NULL HYPOTHESES - SOCIOMETRIC CHOICE AND MOBILITY

The relationship of mobility to sociometric choice was investigated for the 150 military students for whom mobility and sociometric data were available. As previously, there was a two-fold approach: mobility in terms of number of schools attended, and mobility in terms of the number of provinces lived in.

Ho: 6.5 No significant correlation exists between the number of schools attended and the sociometric choice of military students.

The distribution of choices made by the military group, classified by sex and the number of schools attended, is

given by Table XLI.

TABLE XLI

SOCIOMETRIC CHOICE OF MILITARY STUDENTS BY NUMBER OF
SCHOOLS ATTENDED

Schools Attended	Military Choices	Civilian Choices	Total	χ^2
All Students				
2-5	84	48	132	
6-11	108	60	168	
Total	192	108	300	.01
Males				
2-5	45	22	67	
6-11	44	31	75	
Total	89	53	142	3.63
Females				
2-5	38	27	66	
6-11	64	29	94	
Total	102	56	158	1.38

None of the three distributions shown is significant, therefore the null hypothesis is accepted. It is noteworthy that there was a tendency for the number of schools attended by the military females to be directly related to the ratio of military civilian choices, whereas there was a strong tendency for this relationship to be inverse in the case of the military males. This divergence of direction is not apparent from the distribution for all students, which has an almost

negligible chi-square value.

Ho: 6.6 No significant correlation exists between the number of provinces lived in and the sociometric choice of military students.

When the criterion of mobility is the number of provinces in which school had been attended in the course of the educational career the findings were as tabulated in Table XLII for the whole military group and its male and female components. Again none of the distributions are significant at the .05 level of confidence, therefore the null hypothesis is accepted.

TABLE XLII

SOCIOMETRIC CHOICE OF MILITARY STUDENTS BY NUMBER OF PROVINCES LIVED IN

No. of Provinces	Military Choices	Civilian Choices	Total	χ^2
All Students				
1-3	97	64	161	
4+	95	44	139	
Total	192	108	300	2.10
Males				
1-3	40	30	79	
4+	49	23	72	
Total	89	53	142	2.79
Females				
1-3	57	35	92	
4+	45	21	66	
Total	102	56	158	.54

Discussion. The sociometric choice of the military male students may be influenced more strongly by mobility than the sociometric choice of the females. What is not so explicable is the different effects of mobility from school to school and mobility from province to province. There was a slight tendency for the sociometric preference of the military females for their own group to be directly related to mobility of school and province. For the male students, the ratio of military to civilian choices had a strong tendency to be inversely related to school mobility and directly related to provincial mobility. Possibly a high rate of mobility within the province makes the military males have more in common with civilian students than high inter-provincial mobility does.

V. SOCIOMETRIC CHOICE - INTRACLAS

The relative interaction of the two groups may be examined effectively in the individual class situation. From the questionnaire data sociograms were constructed for a Grade IX class and a Grade XII class. The sociograms were divided into military and civilian parts, which complicated the plotting of the choices, but which made it possible to observe more easily the interaction within the military and

civilian student groups in the class. At the same time the lines of choice crossing the dividing line gave a ready indication of the interaction between the two groups of students. The male students are represented in the sociograms by hexagonal cells and the females by round cells.

Grade IX. The differences of choice as indicated in Figure 2 for Grade IX as a whole are not so evident in the sociogram of a single Grade IX class at Figure 3, although the same tendency is present. The fourteen military students in this class made eighteen military choices and ten civilian choices for a ratio of 1.8:1, compared to a similar ratio of 2.6:1 for all military students in Grade IX. The ten civilian students made twelve civilian and eight military choices for a ratio of 1.5:1, compared to a ratio of 1.3:1 for all Grade IX civilian students.

The interaction between the sexes was approximately equal for both groups; the military students chose the opposite sex on eight out of twenty-eight choices while the civilian students did so on six out of twenty choices.

There were no clique patterns evident on this class sociogram, probably because there was insufficient time for them to develop in the two months since school had commenced in September. Out of a total of ten mutual choices made in

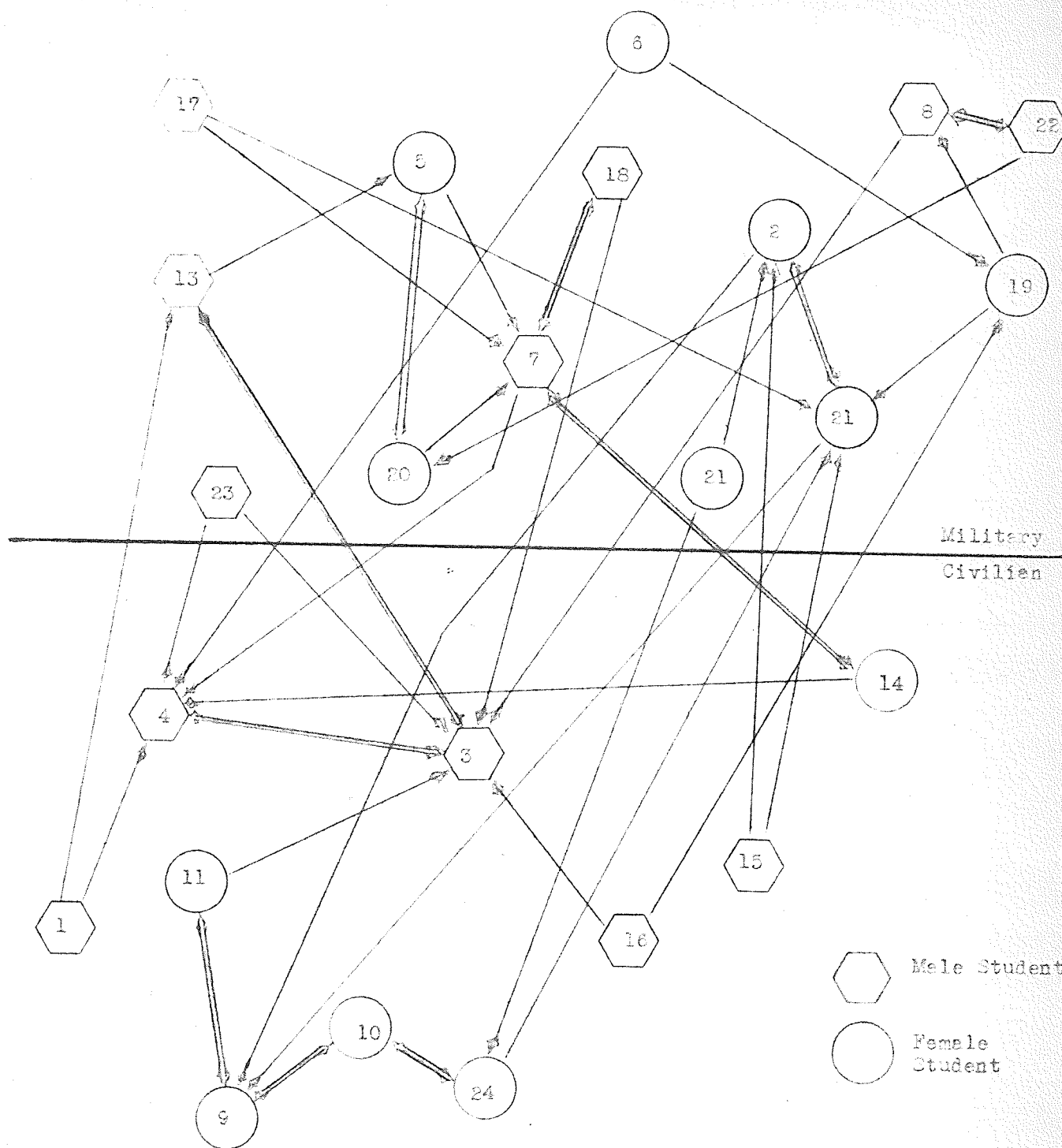


FIGURE 3

SOCIOGRAM OF GRADE IX CLASS

the class, only two were between military and civilian students (Nos. 13, 3; 7, 14).

Grade XII. Whereas the Grade IX sociogram understated the total Grade IX situation, the sociogram of the Grade XII class at Figure 4 gives an accentuated representation of the choice pattern for all Grade XII students. The nine military students made eight military choices and ten civilian choices for a choice ratio of 0.8:1, compared to a ratio of 1.45:1 for all Grade XII military students. The civilian students made twenty-four civilian and six military choices for a choice ratio of 4.1, compared to the total Grade XII civilian figure of 2.1:1.

There was a considerable difference in the interaction of the sexes in the two groups; the military students picked a member of the opposite sex on five of their eighteen possible choices, whereas the civilian students did so on only two out of thirty possible choices.

The structure of association is much more complex in the Grade XII class than in the Grade IX class, although this growth in complexity was almost entirely confined to the civilian component of the class. There were six mutual choices in the civilian group (Nos. 2, 3; 3, 19; 14, 15; 15, 17; 10, 12 and 7, 20), one mutual choice in the military group

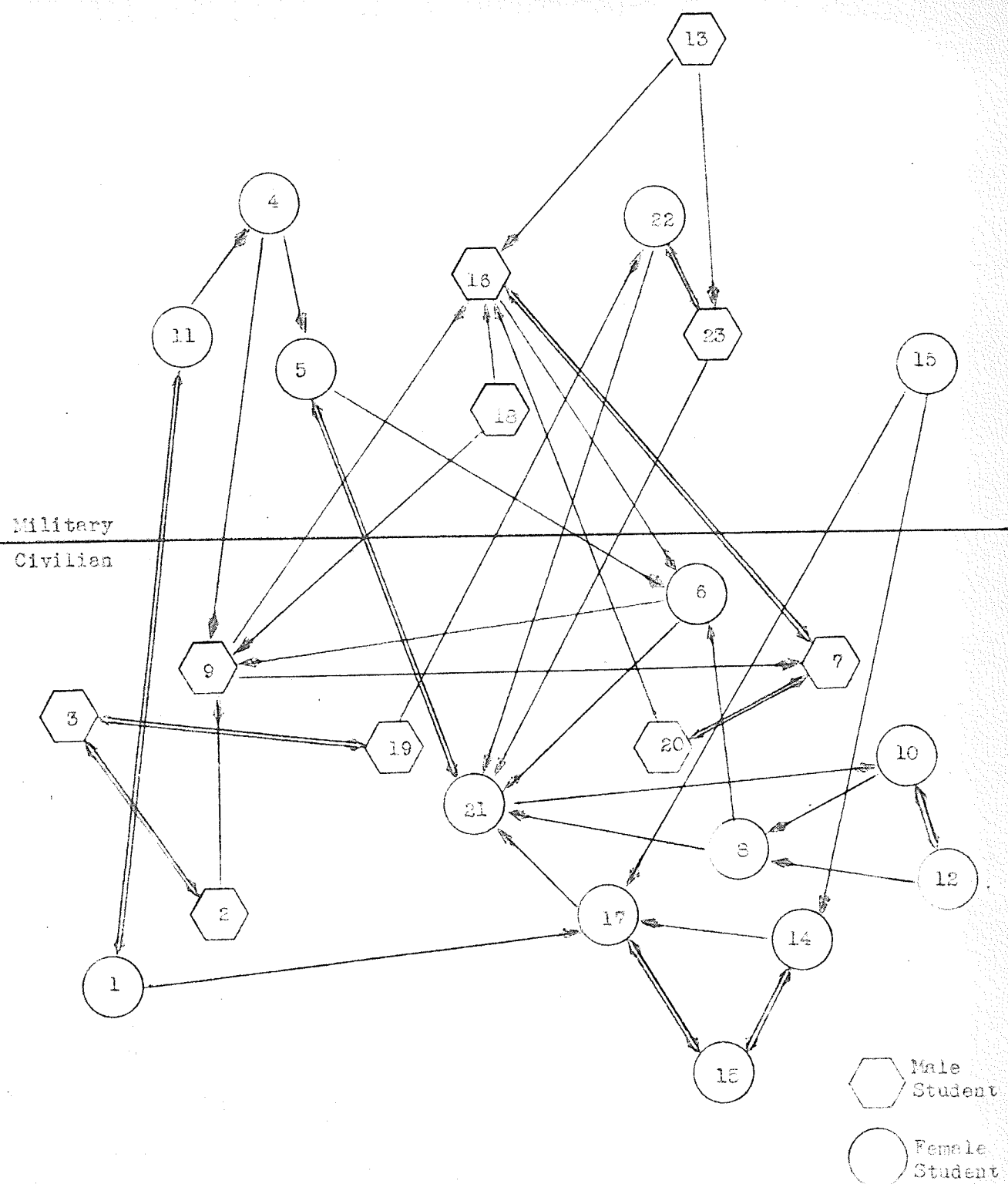


FIGURE 4

SOCIOGRAM OF GRADE XII CLASS

(Nos. 22, 23), and three mutual choices between military and civilian students (Nos. 11, 1; 5, 21; and 16, 7). In the civilian group two cliques were evident: one clique composed of five females forming three triads (Nos. 6, 8, 10, 12, 21), another composed of three females (Nos. 14, 15, 17). There were no cliques among the military students, although a male was the key figure in a male clique with three civilian males (Nos. 16, 7, 20, 9). A military female (No. 5) was also attached to the large civilian female clique.

Discussion. With the smaller number of military students in the Grade XII class it is unlikely that the same complexity of sociometric association would appear, but the wide divergence of choice ratios of the two groups indicate that this is not the reason for the lack of interaction within the military group. When the clique structure of Figure 4 are considered it is apparent that the removal of a key figure would break the clique. The transfer of a proportion of the military students every year is probably sufficient to prevent any closely-knit structure to develop in the military students as they progress from Grade IX to Grade XII.

VI. CONCLUSIONS

Military students and civilian students, as hypothesized, made significantly more choices from their own group than from the other group. There was no significant difference between the choice patterns of male and female students of the military and civilian groups. A considerable interaction between the two student groups was indicated by the allotment by each group of more than one-third of the available choices to the other group.

The sociometric preference of the military students for their own group was inversely proportional to the length of time they had attended the collegiate. This relationship was not significant for the civilian students.

No significant correlation was found between the sociometric choice of the military students and the number of schools attended and provinces lived in. There was a tendency for the military-civilian choice ratio of the male military student to be directly related to the number of schools attended and inversely related to number of provinces lived in.

From sociograms of a Grade IX and Grade XII class it may be concluded that there is a growth in the inter-relationship of the civilian students as they progress through the

grades. The absence of this process among military students is ascribed to the continuous replacement of students caused by the transfer of the military parent.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

I. SUMMARY

The Problem. For members of the Canadian Armed Forces, regular transfers, both between the provinces of Canada and overseas, are a part of their way of life. It was the hypothesis of the study that the mobility of Armed Forces personnel adversely affects the education of their adolescent dependents, as revealed by their educational achievement, class discipline, relative age, mental ability, extra-curricular activity and social interaction. The dependent of high-school age was chosen because the differences in provincial curricula were believed to be of greater importance at the secondary level, while the cumulative effects of mobility should be more evident in the closing stages of school education.

Design of the Study. The study was made at a collegiate institute attended by the dependents of the military personnel, both Canadian Army and Royal Canadian Air Force, of a military base in Manitoba. The military dependents comprised approximately one half of the student population, the

remainder being civilian students. The main sources of data for the study were the official records of the collegiate and a questionnaire completed by the students.

The treatment of the findings in the body of the study relied heavily on statistical procedures. The chi-square test was applied in most instances to test the significance of the computed statistics, with the .05 level on confidence as the rejection point for null hypotheses. The coefficient of contingency, corrected for understatement, was adopted as the measure of correlation between variables.

The Findings. From the original data, shown as Appendix A, contingency tables were constructed from which the significance or non-significance of the null hypotheses listed in Chapter I was determined. A summary of these results is given by Table XLIII. In the case of Ho: 2.1 the data on mental ability was not sufficient to test the null hypothesis, although there was an evident tendency for the military students to be of higher intelligence. The treatment of the null hypotheses on achievement requires further explanation. In Ho: 3.1 the data for each grade was computed and tested for significance, because of the different measures of achievement available in each grade. Similarly, the correlations tested in Ho: 3.2 and Ho: 3.3 are reported for

TABLE XLIII
SUMMARY OF NULL HYPOTHESES

Null Hypothesis	Significance (.05 level)	Disposition
Ho: 1.1	Yes	Rejected
Ho: 1.2	Yes	Rejected
Ho: 2.1	Data Inconclusive	
Ho: 2.2	No	Accepted
Ho: 2.3	Yes	Rejected
Ho: 2.4	No	Accepted
Ho: 2.5	No	Accepted
Ho: 3.1 GR. IX	Yes-	Rejected
GR. X	Yes	Rejected
GR. XI	Yes	Rejected
GR. XII	No	Accepted
Ho: 3.2	Yes	Rejected
Males	Yes	Rejected
Females	No	Accepted
Ho: 3.3	No	Accepted
Males	No	Accepted
Females	No	Accepted
Ho: 4.1	Yes	Rejected
Ho: 4.2	Yes	Rejected
Ho: 5.1	No	Accepted
Ho: 5.2	No	Accepted
Ho: 5.3	Yes	Rejected
Civilian	Yes	Rejected
Military	No	Accepted
Ho: 6.1	Yes	Rejected
Ho: 6.2	No	Accepted
Ho: 6.3	Yes	Rejected
Ho: 6.4	No	Accepted
Ho: 6.5	No	Accepted
Ho: 6.6	No	Accepted

male and female as well as for the whole groups. This was done because any difference in the effect of mobility on the sexes was believed to be important to the study. For similar

reasons Ho: 5.3 was tested for military and civilian students, as well as for the whole student body.

II. CONCLUSIONS

From the results of the study it is possible to draw certain conclusions. For convenience, each of the general hypotheses dealing with a particular area of investigation will be restated, followed by the conclusions pertaining to the area of question:

1. Military and civilian students differ in their mobility and how they are affected by mobility.

The mobility of military students is almost three times greater than that of civilian students in terms of previous schools attended, and more than three times greater in terms of the number of provinces lived in. Mobility of school or province is not directly related to delinquency in the form of discipline infractions. High mobility of school was directly related to poor achievement for male students but not for females. Mobility of school or province did not affect sociometric choice.

2. Military and civilian students differ in age, mental ability, and incidence of delinquency.

No conclusions concerning mental ability could be

drawn from the available data. There was no appreciable age difference between military and civilian students. Male military students were greater discipline problems as defined in this study, than male civilian students.

3. Military and civilian students differ in academic achievement.

On the whole the military students were superior in achievement: they were superior in Grade IX and Grade XI and inferior in Grade X, in which grade their scores seemed to be depressed by possible bias.

4. Military and civilian students differ in their views of problem areas in education.

Military students have a greater number of educational problems than civilian students. The problems of the military student are concerned with the home environment, while those of the civilian student involve social factors, such as other students.

5. Military and civilian students differ in their participation in extra-curricular activities.

There was no difference in the amount of extra-curricular activity of the two groups. For civilian students their extra-curricular activity was directly related to the

length of their stay in the school; for military students this relationship was not evident.

6. Military and civilian students differ in their patterns of sociometric choice.

Each group, as a whole, preferred to make their choices within their own group. In the military group the preference for their own group was inversely proportional to the length of time they had attended the collegiate. This relationship was not evident in the civilian group. Sociograms of a Grade IX class and a Grade XII class show there is a growth in complexity of the inter-relationships of the civilian students as they progress through the grades. The military students show no evidence of such a process, their Grade XII sociogram being as unstructured as their Grade IX sociogram.

III. IMPLICATIONS OF THE RESULTS

It seems evident that the implications of mobility are greater for the male dependent than the female dependent. Poor achievement for the male dependents was directly related to a high rate of mobility. The delinquency rate for male dependents was also three times greater than for an equal number of civilian students. The male dependent is forced to

break into existing group relationships, a procedure which becomes more involved in high school when inter-sexual association is involved. At the same time he finds the friends in his own circle being detached one by one, resulting in the type of Grade XII situation found in the study of practically no group friendships in the military group. Possibly the delinquency of the male dependents is the result of their attempt to make themselves known to their schoolmates as quickly as possible. It may also be due to the subjective reactions of the teaching staff, which led, in this instance, to improvement of civilian scores compared to military scores in certain grades.

It is apparent that the basic cause of the problem, the mobility of certain sectors of the population, cannot be altered. Any solution must be concerned with the educational systems of Canada in the Federal and Provincial fields. The Federal Government discharges its responsibility for the education of dependents only when forced to do so. In the field of secondary education the responsibility is delegated to the provincial authority, with appropriate compensation. The high school curriculum overseas, while it follows the regulations of the Province of Ontario, is uniform for all schools in Europe, indicating that, where necessary, the

Federal Government can provide an adequate secondary education. The cost of providing such secondary education facilities would of course be higher than the present system, but if it results in an educational system which does not victimize its students the cost will be worthwhile.

IV. FURTHER RESEARCH REQUIRED

The present study deals with a particular situation where the military dependents comprised almost half of the total student population. The performance of military students who are dispersed throughout a city school system such as that of Toronto in comparison to the average city student would be valuable information.

Further research is needed into the numbers of military dependents who actually finish high school, achieve matriculation, are attending university, and graduate from university. A comparison of these statistics with those for the general population would give a clearer picture of the extent of any educational deprivation or lack of opportunity experienced by military dependents. Research in these areas would be facilitated if the Dominion Bureau of Statistics gave separate treatment to the statistics of military dependents, instead of including them in the general population.

More research is required into the relation of mobility to the educational performance, attitudes and delinquency of the school age population. Of particular importance is the comparison of the effects of voluntary and compulsory mobility. The present study is concerned with a group subject to compulsory mobility; the findings on a group which has moved voluntarily may be very different.

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APPENDICES

APPENDIX A

ORIGINAL DATA FOR SUBJECTS IN THE STUDY

PART 1. GRADE IX STUDENTS 1963-64

SUBJECT		ACHIEVEMENT										QUESTIONNAIRE		
		Departmentals												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Case Number	Military	Civilian	M Sex F	I.Q.	Age (1 Sept. 63)	P Final F Standing	Language	Social	Mathematics	Science	Schools Attended	Provinces Attended	Extra Curricular Activities	M Sociometric C Choices
1	1		1		13-11	8 0	67	77	59	58	7	4	0	2 0
2	1		1		12-11	7 1	63	81	77	59				
3	1			1	114 14-1	8 0	62	56	72	54				
4		1	1	110	13-8	3 5	48	61	42	39	8	5	0	0 2
5	1		1	101	14-1	8 0	54	70	82	60	4	4	0	1 1
6	1		1	103	14-0	8 0	62	59	74	72	3	2	3	1 1

PART 1. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
7	1		1		14-1	8 0 59	81	44	45					
8		1	1	104	14-3	8 0 48	68	62	68					
9		1	1		13-10	8 0 58	72	85	73	2	1	3	1	1
10		1	1		12-10	7 1 50	52	63	36	2	1	0	1	1
11		1	1		14-3	6 2 46	48	56	50	2	1	1	1	1
12	1		1	118	14-9	5 3 48	46	68	48					
13	1		1		15-8	8 0 63	79	85	72	8	1	0	0	2
14	1		1		13-5	8 0 57	80	71	79					
15		1	1		14-0	8 0 74	92	87	85	2	1	0	2	0
16		1	1		14-5-	6 2 48	50	40	46	2	1	0	1	1
17		1	1		14-6	8 0 63	68	80	61					
18		1	1		13-9	8 0 63	79	78	75	2	1	3	0	2
19	1		1	103	14-7	5 3 51	51	65	58	7	2	0	2	0
20	1		1	115	13-11	8 0 61	67	57	63					
21	1		1	100	15-1	5 3 53	78	56	69	5	4	0	1	1

PART 1. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
22	1		1	115	14-3	8	0	71	71	69	65	5	3	4
23	1		1	105	13-8	8	0	61	70	72	64			
24	1		1	104	15-4	3	5	31	55	63	55			
25		1	1		13-6	8	0	48	63	75	73	6	2	2
26		1	1	105	13-9	3	5	39	55	50	52	2	1	0
27	1		1		13-7	8	0	72	73	66	61			
28	1		1	118	14-4	8	0	53	48	80	59	4	3	1
29		1	1		13-11	8	0	62	77	89	60	2	1	0
30	1		1	118	13-11	7	1	62	46	75	62	4	3	1
31		1	1	106	13-11	8	0	83	78	89	77	2	1	2
32	1		1	118	13-1	8	0	63	88	77	70	6	4	0
33	1		1	112	15-3	6	2	62	65	77	69			
34		1	1		14-3	8	0	74	81	95	80	2	1	1
35	1		1	102	15-4	7	1	55	62	69	54			
36	1		1	120	13-9	8	0	67	73	94	68			
37	1		1		14-8	8	0	55	70	58	48			

PART 1. (Contin'd)

148

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
38		1	1		13-11	7	1	52	69	60	69			
39	1		1	98	14-9	6	2	46	56	39	46			
40		1	1		14-9	7	1	47	56	55	58	2	1	0
41		1	1		15-11	7	1	47	50	58	48	2	1	2
42	1		1	112	15-9	8	0	59	63	51	71			
43		1	1		16-7	5	3	46	28	55	33			
44	1		1	109	15-9	6	2	54	80	94	63			
45	1		1		14-11	5	3	50	34	59	48			
46	1		1		14-3	7	1	54	68	62	70	5	4	0
47		1	1		14-10	7	1	51	69	64	39	3	1	2
48	1		1		15-2	4	4	36	59	40	61			
49		1	1		14-9	2	6	36	42	19	42	2	1	0
50		1	1		15-1	4	4	42	48	48	52	3	1	1
51		1	1		14-1	8	0	44	70	52	35	3	1	2
52		1	1		14-3	8	0	55	74	72	67	2	1	0
53	1		1		13-8	8	0	57	60	83	50			

PART 1. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
54		1	1		13-9	6 2 37	54	42	73	3	1	0	1	1
55	1		1	107	14-4	7 1 54	52	61	61	5	2	1	2	0
56	1		1	101	14-4	6 2 43	67	48	61	7	4	1	1	1
57		1	1		13-9	8 0 48	57	59	54	3	1	1	1	1
58	1		1		14-2	8 0 74	81	95	80	7	7	0	2	0
59	1		1		14-4	8 0 69	63	86	61	5	2	1	1	1
60	1		1	129	13-9	8 0 75	80	86	83	5	3	0	2	0
61		1	1		13-5	8 0 79	78	100	85	3	1	0	0	2
62		1	1		13-11	8 0 63	63	83	64	2	1	2	0	2
63		1	1		14-3	8 0 69	77	86	88	2	1	0	0	2
64		1	1	136	14-6	8 0 65	83	76	79					
65	1		1	110	14-6	8 0 57	91	77	87					
66	1		1	119	14-3	8 0 61	66	74	69	5	3	2	1	1
67		1	1		14-2	8 0 64	77	79	64	3	1	1	1	1
68		1	1		13-8	8 0 73	66	88	74	2	1	2	0	2
69		1	1		13-1	8 0 81	77	94	75	3	1	2	0	2

PART 1. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
70		1	1		13-6	8 0 72	76		95	71	3	1	1	0 2
71	1		1		13-10	8 0 75	82		67	85				
72	1		1		15-10	7 1 60	75		74	61				
73	1		1	115	14-8	8 0 62	79		86	81	6	4	1	0 2
74	1		1	103	14-3	8 0 71	70		77	74	8	3	1	1 1
75	1		1		14-6	8 0 59	66		74	64				
76	1		1	114	14-4	8 0 64	71		69	60	4	4	0	1 1
77		1	1		14-1	8 0 70	66		79	79	2	1	0	1 1
78	1		1	125	14-2	8 0 79	81		94	85				
79	1		1	105	14-0	8 0 71	79		86	84	3	1	1	2 0
80	1		1	110	14-0	7 1 68	73		71	69				
81	1		1	116	14-7	8 0 80	80		95	92	8	4	0	1 1
82	1		1	105	14-2	6 2 63	56		63	65	3	2	3	1 1
83	1		1	115	13-10	8 0 67	80		83	74	6	4	0	1 1
84		1	1		14-6	8 0 56	67		80	62				
85		1	1	89	15-8	8 0 48	56		67	53	2	1	0	1 1

PART 1. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
86	1	1	92	15-2	6	2	56	38	47					
87	1	1	14-11	8	0	50	68	62	51					
88	1	1	86	16-5	6	2	51	68	51	59	3	2	0	1 1
89	1	1	92	16-8	6	2	46	38	50	51				
90	1	1	99	16-4	6	2	50	83	77	79				
91	1	1	82	15-11	4	4	46	30	17	38	8	5	1	2 0
92	1	1	93	15-10	8	0	48	43	44	47	2	1	0	1 1
93	1	1	87	17-5	8	0	53	61	43	62	4	1	3	1 1
94	1	1	17-6	6	2	46	56	39	46					
95	1	1	92	16-4	8	0	43	61	46	62	2	1	1	1 1
96	1	1	15-5	8	0	48	65	65	44					
97	1	1	89	15-8	8	0	59	54	65	58				
98	1	1	95	15-11	6	2	59	67	21	50	5	3	0	1 1
99	1	1	75	15-8	0	8	23	33	17	45	3	1	1	1 1
100	1	1	14-7	4	4	39	59	34	46	3	1	0	0	2
101	1	1	17-6	2	6	24	61	29	54					

PART 1. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
102	1		1		14-11	6 2	48	41	42	48				
103	1			1	98	14-9	4 4	42	26	33	50			
104		1	1		92	16-1	7 1	45	70	52	53			
105		1		1		14-9	6 2	59	59	56	67			

PART 2. GRADE IX STUDENTS 1964-65

106		1	1								2	1	0	1 1
107	1			1							6	2	1	2 0
108		1	1								2	1	1	1 1
109		1	1								2	1	0	1 1
110	1			1							6	3	0	2 0
111	1			1							4	2	1	1 1
112	1		1								6	3	0	1 1
113	1		1								6	3	1	1 1
114		1		1							2	1	0	0 2
115		1		1							2	1	1	0 2
116		1		1							3	1	0	0 2

PART 2. (Contin'd)

(1)	(2)	(3)	(4)	(12)	(13)	(14)	(15)
117	1		1	7	3	1	1 1
118	1		1	3	1	0	1 1
119		1	1	3	1	0	1 1
120		1	1	2	1	2	2 0
121		1	1	2	1	0	1 1
122	1		1	10	5	0	1 1
123	1		1	8	4	0	1 1
124	1		1	9	6	4	2 0
125	1		1	9	3	0	2 0
126	1		1	9	5	0	1 1
127	1		1	8	3	0	1 1
128	1		1	4	3	1	0 2
129		1	1	2	1	0	1 1
130	1		1	5	3	1	1 1
131	1		1	6	4	1	2 0
132	1		1	10	6	3	2 0

PART 2. (Contin'd)

(1)	(2)	(3)	(4)	(12)	(13)	(14)	(15)
133	1		1	8	5	2	2 0
134	1		1	4	2	1	2 0
135	1		1	4	3	1	1 1
136		1	1	3	1	0	0 2
137		1	1	2	1	1	1 1
138	1		1	5	5	1	2 0
139		1	1	3	1	3	2 0
140	1		1	5	4	1	2 0
141		1	1	2	1	0	2 0
142	1		1	4	3	2	2 0
143	1		1	4	3	0	1 1
144		1	1	2	1	1	1 1
145	1		1	8	6	4	2 0
146	1		1	7	5	0	2 0
147	1		1	3	2	2	1 1

PART 2. (Contin'd)

(1)	(2)	(3)	(4)	(12)	(13)	(14)	(15)
148	1		1	6	5	0	1 1
149		1	1	2	1	0	1 1
150	1		1	9	3	0	2 0
151	1		1	4	2	0	2 0
152	1		1	3	2	0	2 0
153		1	1	2	1	0	1 1
154		1	1	2	1	2	0 2
155	1		1	6	3	1	0 2
156		1	1	2	1	4	1 1
157	1		1	8	3	1	0 2
158	1		1	5	2	1	2 0
159	1		1	5	2	0	2 0
160		1	1	2	1	1	0 2
161	1		1	3	2	1	1 1
162		1	1	6	1	0	1 1
163		1	1	2	1	2	1 1

PART 2. (Contin'd)

(1)	(2)	(3)	(4)	(12)	(13)	(14)	(15)
164	1		1	5	3	0	1 1
165	1		1	7	3	3	1 1
166		1	1	2	1	0	0 2
167	1		1	6	3	2	2 0
168	1		1	4	3	2	2 0
169	1		1	4	3	0	2 0
170		1	1	2	1	0	1 1
171		1	1	5	1	0	1 1
172		1	1	2	1	0	1 1
173		1	1	2	1	0	1 1
174	1		1	9	5	0	2 0
175		1	1	2	1	0	1 1
176		1	1	4	1	1	1 1
177	1		1	3	2	1	1 1

PART 3. GRADE X STUDENTS 1963-64

SUBJECTS			ACHIEVEMENT										QUESTIONNAIRE						
Case Number	Military	Civilian	Sex	I. Q.	Age (1 Sept. 63)	Departmentals										Schools Attended	Provinces Attended	Extra-Curricular Activities	Sociometric Choices
						Term Tests	Final Standing	Literature	Composition	Mathematics	Science	Geography	(10)	(11)	(12)				
178		1	1	129	15-4	19	0	7	0	85	78	75	91	81	2	1	3	0	2
179	1		1	118	17-1	15	4	5	2	35	50	47	79	61	6	3	1	2	0
180	1		1		14-10	18	1	7	0	55	60	57	77	52	4	4	0	0	2
181	1		1	102	15-11	5	14	2	5	42	50	10	53	42	9	4	1	1	1
182	1		1		14-10	16	3	7	0	68	60	16	63	49					
183	1		1	102	14-11	9	9	2	5	32	39	14	47	44					
184	1		1		15-1	9	10	4	3	50	58	19	66	46					
185	1		1		15-2	16	3	5	2	48	63	19	71	55	7	5	1	1	1
186		1	1	97	15-4	10	9	5	2	43	56	15	71	51	2	1	1	1	1

PART 3. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
187	1	1	1	17-10	5 14	3 4	26	60	20	55	56	2				
188	1	1	1	115 15-7	19 0	7 0	64	65	69	90	56	3	2	3	0	2
189	1	1	1	95 16-1	9 10	4 3	60	54	21	73	48					
190	1	1	1	121 15-11	17 0	7 0	50	77	38	74	60	2	1	3	1	1
191	1	1	1	98 15-5	13 6	6 1	51	50	23	65	43					
192	1	1	1	85 16-0	4 15	1 6	33	30	14	54	52	6	2	1	2	0
193	1	1	1	118 14-11	19 0	7 0	66	73	65	91	66	2	1	3	0	2
194	1	1	1	94 15-5	10 9	4 3	59	50	4	67	44					
195	1	1	1	118 14-11	19 0	7 0	80	75	54	96	79	2	1	0	0	2
196	1	1	1	91 15-5	13 6	6 1	47	53	32	69	48	3	1	2	1	1
197	1	1	1	118 15-2	18 1	6 1	38	63	49	68	56					
198	1	1	1	106 15-4	17 2	7 0	52	46	21	72	64	3	1	0	0	2
199	1	1	1	121 15-8	19 0	7 0	75	69	43	85	65					
200	1	1	1	105 15-7	19 0	7 0	65	67	38	91	59	3	1	0	1	1
201	1	1	1	100 15-1	17 0	7 0	75	59	63	81	77	2	1	3	0	2
202	1	1	1	15-5	15 4	5 2	71	56	17	63	42					158

PART 3. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)			
203		1	1	110	15-5	19	0	7	0	73	67	39	77	75	2	1	0	2	
204		1	1	120	15-1	15	4	6	1	66	51	57	82	74	2	1	0	2	
205	1		1	121	15-6	15	4	6	1	64	54	37	79	48					
206		1	1	107	15-5	17	2	7	0	58	61	48	78	48	2	1	0	2	
207	1		1		15-5	19	0	7	0	84	82	53	86	76	7	6	4	2	0
208	1		1	116	14-11	15	3	7	0	50	68	50	74	63					
209		1	1	123	14-11	18	0	7	0	83	85	55	81	69	2	1	3	0	2
210		1	1	110	15-5	17	1	7	0	77	73	41	80	74	2	1	2	1	1
211		1	1	124	15-6	18	0	7	0	81	79	72	85	76	2	1	0	1	1
212	1		1	125	14-7	14	4	6	1	62	63	35	79	75	4	3	1	1	1
213	1		1		15-1	17	1	7	0	74	69	53	76	66					
214	1		1	97	16-9	13	5	6	1	58	65	44	80	72	11	5	3	1	1
215		1	1	114	14-11	16	2	6	1	58	68	40	65	54	2	1	0	1	1
216		1	1	123	14-10	18	0	7	0	82	78	46	84	73	2	1	1	1	1
217	1		1		14-1	16	2	6	1	61	64	34	66	59	5	3	1	2	0
218		1	1	107	14-9	16	2	7	0	71	67	31	64	61					159

PART 3. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
219		1	1	120	14-5	17 1	7 0	72	64	43	71	56	2	1	0	2
220		1	1	109	15-1	14 4	5 2	60	67	58	63	45	2	1	4	1
221	1		1	115	15-7	17 1	7 0	79	64	37	80	68	6	3	0	2
222		1	1	109	15-3	18 0	7 0	65	69	38	68	65	3	1	1	1
223		1	1	105	14-11	16 2	6 1	62	48	34	65	47	3	1	0	2
224	1		1		14-6	0 0	7 0	69	63	64	88	73				
225	1		1	116	15-0	18 0	7 0	94	74	64	91	80				
226	1		1		15-1	16 2	7 0	50	59	53	56	56	9	4	1	1
227		1	1	117	14-10	9 9	6 1	65	60	41	62	52	2	1	2	1
228		1	1	103	14-10	12 6	6 1	58	54	9	51	52	4	1	1	1
229	1		1	101	15-3	18 0	7 0	53	57	24	56	44				
230		1	1	113	15-4	15 3	7 0	72	69	58	85	78	2	1	0	2
231		1	1	113	15-2	18 0	7 0	73	66	51	77	63	2	1	3	1
232	1		1		14-0	15 3	7 0	67	70	45	66	65	5	3	1	0
233		1	1	116	15-2	18 0	7 0	74	72	57	84	78	2	1	1	1

PART 3. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
234	1		1	102	16-10	13	5	6	1	55	59	27	56	65		
235	1		1	114	15-7	14	4	6	1	55	65	34	47	45		
236	1	1	1	122	15-5	18	0	7	0	71	83	81	92	84		
237	1	1	1	97	15-3	17	1	7	0	74	65	50	75	65	2	1
238	1	1	1	78	18-3			2	2			50	57	28		
239	1	1	1	84	16-5			6	1	57	55	26	69	55		
240	1	1	1	100	17-1			6	1	56	39	24	68	55		
241	1	1	1	96	18-1			5	2	50	52	15	74	58	3	1
242	1	1	1	121	16-0			6	1	65	54	39	82	57	7	3
243	1		1		17-3			5	1	50	65	23	60	48		
244	1	1	1	103	15-7			4	3	50	42	21	64	54	2	1
245	1	1	1	101	14-8			4	3	51	43	28	52	37	2	1
246	1	1	1	101	16-0			6	0	63	55	19	72	54	5	3
247	1		1		14-11			7	0	72	72	54	89	74	6	5
248	1	1	1	114	14-9			5	2	47	35	37	74	45	6	4
249	1	1	1	106	15-3			5	2	46	44	31	59	40		

PART 3. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
250		1	1	103	16-8		5	1	45	62	28	76	49			
251		1	1	100	16-2		6	0	46	56	28	87	51	4	1	4 0 2
252		1	1		16-1		0	7	39	51	4	29	27			
253		1	1	87	15-8		6	1	53	47	19	70	47			
254	1		1	122	16-10		3	4	48	55	38	75	40	5	5	3 2 0
255		1	1	100	16-5		6	1	50	54	17	50	43			
256		1	1	109	14-11		6	1	53	57	24	56	44	2	1	0 1 1
257		1	1	107	15-3		6	1	50	65	20	62	58	2	1	0 1 1
258		1	1	99	15-7		7	0	73	59	21	67	50	2	1	0 1 1
259		1	1	84	16-10		3	4	43	50	9	51	29			
260		1	1	86	17-4		5	1	50	42	28	76	68	3	1	1 2 0
261		1	1	93	15-7		5	1	61	66	8	72	68			
262		1	1	96	15-4		4	3	39	44	39	81	49	3	1	1 0 2
263	1		1	105	14-9		5	2	55	58	39	64	36	9	2	0 1 1
264	1		1	110	15-5		6	0	60	58	43	77	46			

PART 3. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)		
265		1		1	96	15-1	6	1	46	53	41	65	45	2	1	0	0	2
266	1			1	100	16-4	6	16	2	6	38	53	31	5	1	1	0	2
267		1		1	91	17-8	12	9	5	3	50	58	42	3	1	0	2	0
268		1		1	106	14-8	20	2	8	0	64	65	56	3	1	1	0	2
269		1	1	108	14-3	13	9	7	1	47	55	78	55	5	4	1	0	2
270	1			1	112	16-0	13	9	4	4	61	63	46					
271		1		1	110	15-0	13	8	7	1	75	63	37	2	1	0	1	1
272	1			1	90	15-8	11	11	5	3	52	36	39	6	6	0	1	1
273	1			1	100	15-1	12	10	7	1	48	45	60	5	2	0	1	1
274	1			1	107	15-11	14	8	7	1	37	55	50	44				
275		1	1		92	16-8	10	12	6	2	48	55	56	2	1	1	1	1
276		1		1	100	14-10	13	9	6	2	57	46	61	2	1	0	0	2
277	1			1		15-3	4	7	3	5	54	33	38					
278	1			1	114	15-2	18	4	7	1	62	73	48	7	4	1	2	0
279	1			1		17-3	10	11	4	4	45	60	50					

PART 3. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
280	1		1		16-10	9	13	4	43	45	41	35				
281	1		1	113	15-6	4	7	7	1	52	65	56	8	5	1	0

PART 4. GRADE X STUDENTS 1964-65

282	1	1	8	5	1	2	0
283	1	1	9	3	0	1	1
284	1	1	10	2	2	1	1
285	1	1	5	2	1	2	0
286	1	1	6	4	1	2	0
287	1	1	7	4	3	2	0
288	1	1	4	3	1	1	1
289	1	1	5	4	1	2	0
290	1	1	11	7	0	2	0
291	1	1	7	5	0	1	1
292	1	1	5	2	1	2	0
293	1	1	11	6	2	1	1
							164

PART 4. (Contin'd)

(1)	(2)	(3)	(4)	(14)	(15)	(16)	(17)
294	1		1	11	6	2	1 1
295	1		1	5	2	0	0 2
296	1		1	5	2	1	1 1
297	1		1	4	3	0	1 1
298	1		1	5	3	0	1 1

PART 5. GRADE XI STUDENTS 1963-64

SUBJECT		ACHIEVEMENT										QUESTIONNAIRE							
Case Number	Military	Civilian	M	F	Sex	I.Q.	Age (1 Sept. 63)	Literature	Composition	History	Mathematics	Chemistry	Physics	Biology	French	Schools Attended	Provinces Attended	Extra-curricular Activities	M Sociometric Choices
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)		
299		1	1	102	16-5	63	59	58	52	62	50		67	3	3	1	1		
300		1	1	89	16-11	51	51	50	41	52	63								
301		1	1	127	16-8	61	70	66	63	71	76		81	2	1	1	1		
302		1	1	97	16-10	45	43	67		63	46								
303		1	1	126	16-5	51	61	70	76	66	58		65						
304	1		1	121	16-11	47	66	59	51	76	62			7	4	0	1	1	
305	1		1	114	17-6		65		52	33	52		32	3	3	3	1	1	
306		1	1	115	15-10	52	53	53	38	53	50		61						
307	1		1	93	16-1	44		62	62	71	57								

PART 5. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
308	1		1	104	15-10			64	52	70	63			3	1	1	1
309		1		1	124	15-9	76	78	82	92	84		85	2	1	2	0
310	1		1	116	17-0	36	44	31	53	53	56			9	7	1	0
311		1	1	115	16-0	61	77	69	68	72	61		70	2	1	0	1
312	1		1		15-11	56	58		46	64	57		53				
313		1	1	100	16-0	60	75	63	66	84	72		68				
314	1		1	103	16-11	50	39	29	51	60	50		42				
315	1		1		15-10	68	74	73	74	89	80		68				
316	1		1		16-3	66	62	50	39	68	51		52				
317		1	1	121	17-1	52		54	74	60	43						
318	1		1	99	15-9	66	42	60	53	69	71		46	4	3	1	1
319	1		1	122	14-11	61	33	50	68	50	51		54	3	3	2	0
320		1	1	127	16-3	71	53	79	91	84	77		71	2	1	4	1
321	1		1	125	16-8	61	74	62	52	82	68		67	6	4	2	1
322	1		1	100	17-8	32		12	33	50	50		45				

PART 5. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
323	1		1	110 16-7	67	66	61	62	71	66		62	11	6	0	2	0
324		1	1	117 16-1	53	67	76	81	85	65		69					
325	1		1	98 16-6	79	72	74	73	83	68		73	11	4	2	1	1
326	1		1	102 16-6	58	63	63	66	69	54		61	8	2	0	2	0
327	1		1	121 16-1	55	68	65	62	79	62		73					
328		1	1	126 16-2	85	69	64	62	80	59		69	3	1	1	1	1
329		1	1	100 16-5	68	50	50	60	47		45	54	2	1	1	1	1
330	1		1	120 16-10	53	58	66	57	56		53	61	4	3	1	1	1
331	1		1	16-6	40	53	44	47	65		37	33	2	2	0	1	1
332	1		1	16-2	50	73	59	55			54	68	5	4	1	1	1
333	1		1	16-1	59	50	47	57	50		51	53	10	6	2	1	1
334		1	1	19-1	53	53		42	50	50							
335		1	1	125 16-7	62	73	72	79	83	76		66	2	1	0	1	1
336		1	1	111 16-3	54	61	68	74	61		59	75	2	1	1	0	2
337	1		1	109 16-11		39	50	31	44		41	38	5	4	0	1	1

PART 5. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
338	1	1	1	112 16-1	57	63	62	67	51	54	65	5	1	0	0	2	
339	1	1	1	100 16-6	54	59	51	50	38	37		2	1	2	1	1	
340	1	1	1	132 16-1	68	81	61	84	67		73	2	1	4	0	2	
341	1		1	18-4	54	71		52	64	53							
342	1		1	116 16-3	74	58	69	75	62	73	77						
343		1	1	96 16-1	55	50	55	62	63	45	54	2	1	1	1	1	
344		1	1	103 16-3	55	70			50	29							
345		1	1	117 16-1	53	68	33	42			50						
346		1	1	111 17-2	51	50		56	38	28		2	1	1	1	1	
347		1	1	104 16-2	74	65	54	42	63	64	71	2	1	0	1	1	
348		1	1	107 18-0		43				29							
349		1	1	96 17-0	50	63	36		70			3	1	1	0	2	
350		1	1	96 16-1	72	50	30			29	69						
351	1		1	18-0	51	64	34	69		27							
352	1		1	124 15-10		43			59	50							
353		1	1	95 19-4	58			10	53	35							

PART 5. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
354		1	1	109	17-4	43	62	36	36	50		36		4	1	1	0 2
355		1	1	101	17-1	52	40	56				42					
356		1	1		16-3		61										
357		1	1	113	16-0	62	59	42	41			35	68	4	1	1	1 1
358		1	1	106	15-11	66	50	50	50			29	67	3	1	1	0 2
359		1	1		95	18-2	37	43	28	42		19					
360		1	1	102	17-10	36	33	50		28	54			8	4	1	2 0
361		1	1	103	16-5		46	51	39			31					
362		1	1	110	17-3	41	44		70			38		2	1	0	1 1
363		1	1	106	16-9	42	52	41	47	43		72		2	1	4	0 2
364		1	1	100	17-7	46	42	50	47			50					
365		1	1	117	16-5	44		47	62	50				3	2	4	0 2
366		1	1	112	16-8		42	51						2	1	2	0 2

PART 6. GRADE XI STUDENTS 1964-65

367	1	1	4	1	0	2	170
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PART 6. (Contin'd)

(1)	(2)	(3)	(4)	(15)	(16)	(17)	(18)
368	1		1	4	4	0	1 1
369	1		1	5	4	0	2 0
370	1		1	6	5	1	0 2
371	1		1	6	5	0	2 0
372	1		1	5	5	0	1 1
373	1		1	7	5	0	2 0
374	1		1	6	3	1	0 2
375	1		1	6	6	1	1 1
376	1		1	10	4	0	2 0
377	1		1	6	3	0	1 1
378	1		1	8	6	0	1 1
379	1		1	9	3	1	2 0

PART 7. GRADE XII STUDENTS 1963-64

Case Number	SUBJECT		ACHIEVEMENT												QUESTIONNAIRE				
	Military	Civilian	M	Sex	I.Q.	Age	English (Comp)	Drama & Poetry	Comp & Prose	Mathematics	Chemistry	Physics	French	History	Biology	Schools Attended	Provinces Attended	Extra-Curricular Activities	M. Sociometric Choice
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
380	1		1		16-1	39				40	41	60-							
381	1		1		116	10-10	55		52	55	56	59-							
382		1	1		102	17-8	56		55	50	50	43							
383	1		1		130	17-1	68		53	68	56	54							
384		1	1		112	17-10	61		50	62	47	42							
385	1		1		18-0	51			50	34	39	27							
386		1	1		127	17-4	40		59	50	46	51							
387	1			1	124	17-3	59		71	65	65	67							
388	1		1		104	16-8	65		45	25	43	52							

PART 7. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
389		1	1	113	17-9	37			42	57	60	50						
390		1	1	94	17-4	61			67	33	38	50						
391	1		1	122	16-5	58			50	35	41	44-						
392	1		1		17-7	44			68		67	51	59					
393	1		1	121	17-7	62			71	64	61	78						
394		1	1	126	17-8	37			88	74	78	69						
395	1		1	101	18-0	39			57	41	50	56						
396	1		1		18-1	48			69	55	44	41-			7	7	5	2 0
397	1		1	116	17-11	51			71	50	66	46						
398	1		1		17-9		60-		63		52	55						
399		1	1		15-11	34			14	27	37	26						
400	1		1		137	16-8	62		88	90	87	79						
401	1		1	103	16-10	23			73-	28	43	51-			11	2	1	1 1
402	1		1		136	16-2	27		75	76	73	62			6	2	2	1 1
403	1		1	110	17-1		58-		42	33	40	46-						
404		1	1	100	18-0			59	68	72	50	45			2	1	0	2 0

PART 7. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
405		1	1	1	17-9						64	72	62					
406		1	1	1	110 17-7		56-			63-			51	50-	2	1	5	0 2
407		1	1	1	93 17-7	59			75-			60		50				
408		1	1	1	19-0	37				35								
409	1		1		19-0	61				11		40-		43				
410	1		1	1	103 16-4	52			35-	42-	5	58-	50		9	4	0	1 1
411		1	1		97 17-9				55				50					
412		1	1		85 17-5		40-	32	55-	67-			43-		3	1	2	0 2
413	1		1	1	17-8	41			50	31			51	52				
414	1		1	1	16-11	41			50	26	51-	40						
415		1	1	1	93 17-5		18			60-		45	50		2	1	4	0 2
416		1	1	1	101 16-10	52			75	64		70		65				
417		1	1	1	85 17-2	57			62-			58	68	61				
418		1	1	1	120 17-2	65			70	63		74	71					
419	1		1		109 18-6		59-	45	63				58	73				
420		1	1	1	113 16-11			36				53	56	57-	3	1	3	0 2

PART 7. (Contin'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
421		1	1	117	16-9		43-	27		55-		59						
422		1	1	87	17-11		46	24-					35	32				
423		1	1	117	17-11		34-	26					35		2	1	0	1
424		1	1	120	17-3	51			67	66		69	61					
425		1	1	83	16-11	35			50-	40-				46	3	1	2	1
426		1	1	87	17-1			36-	54	54		51						

PART 8. GRADE XII STUDENTS 1964-1965

427		1	1												2	1	0	1	1
428	1		1												7	7	0	2	0
429	1					1									5	4	1	1	1
430	1		1												6	5	1	2	0
431	1					1									7	7	1	2	0
432	1														9	3	3	2	0
433	1					1									6	4	2	0	2

PART 8. (Contin'd)

(1)	(2)	(3)	(4)	(16)	(17)	(18)	(19)
434		1	1	4	3	1	1 1
435	1		1	5	4	0	1 1
436	1		1	6	5	1	0 2

AIR FORCE ADMINISTRATIVE ORDERS GOVERNING THE
EDUCATION OF MILITARY DEPENDENTS

54.00/03 - EDUCATION OF CHILDREN - CANADA

PART 1 - GENERAL

DEFINITIONS

(1) For the purpose of this order:

- (a) children means persons who are either legitimate children, adopted children, step-children, or children in respect of whom an officer or man has accepted full financial responsibility and has commenced adoption proceedings, and who, at the commencement of the school year, either shall not have passed their nineteenth birthday, or shall not exceed the age limits prescribed in applicable provincial or territorial legislation for purposes of determining eligibility for free public education;
- (b) DND school means a school established by the Minister on a defence establishment to provide educational facilities for children in accordance with this order;
- (c) DND school authority means, depending on the context in which it is used, either

- (i) the school committee (or the chairman thereof) formed and so designated by the CO, or
- (ii) the member(s) of such a school committee who has or have been accorded official status as a school board or other school authority under applicable provincial legislation;
- (d) educational facilities includes schools which provide for all phases of education within elementary and secondary levels in accordance with applicable provincial regulations;
- (e) Minister means the Minister of National Defence or the Associate Minister of National Defence; and
- (f) staff member means a member of the supervisory or teaching staff in a DND school.

GENERAL POLICY

(2) Order in Council PC 1959-7/1480 dated 19 Nov 59 authorizes the Minister to provide educational facilities for:

- (a) the children of service and certain other personnel who reside at or near a defence establishment, by establishing a DND school; or
- (b) the children of personnel who reside at a defence establishment, by arranging for their attendance at other schools in the vicinity.

(4) Wherever possible children shall be educated in schools provided by local education authorities. If suitable educational facilities are not available within a reasonable distance from a defence establishment a DND school may be established. The guiding principle is that children residing on tax-exempt Crown land shall be provided with educational facilities at public expense in the same way and to the same extent as are other children at publicly supported schools in the same locality.

CHANNELS OF COMMUNICATION

(5) The DND school authority or the business administrator is authorized to correspond direct with representatives of the provincial Department of Education on matters dealing with the administration and operation of DND schools, except that matters involving changes in policy or new financial commitments shall be referred to AFHQ through normal channels.

PART 11 - DND SCHOOLS IN CANADA

ESTABLISHMENT OR EXTENSION OF A DND SCHOOL

(6) At a defence establishment where suitable educational facilities are not available locally and a DND school or an extension to an existing one becomes necessary, proposals shall be forwarded through normal channels to AFHQ, including

a two-year forecast of pertinent grade enrolments expected from MQs and other authorized living Quarters at that defence establishment in the form shown at app E.

ADMINISTRATION OF DND SCHOOLS

(8) In Nova Scotia the Minister enters into an agreement with a county school board for the operation of a DND school. When a DND school is established the county school board assumes the responsibility for operating the school in accordance with the terms of the agreement.

(9) In British Columbia the education of children residing on tax-exempt Crown lands is governed by a special agreement between the province and the Federal Government and the provisions of this order do not apply to former DND schools in that province.

(10) In other provinces when provincial legislation applies to a DND school that school will be operated in accordance with the provincial laws respecting education. In Quebec and Newfoundland some special conditions affect the operation of DND schools.

DND SCHOOL COMMITTEE

(11) The CO of a defence establishment where a DND school is located shall, having regard to the need for the widest

possible representation among parents of the children attending the school, form a school committee of at least three persons, one of whom shall be an officer and designated as the chairman. When, under provincial legislation, the DND school committee or member(s) thereof are officially recognized by the appropriate provincial authority as a school board, official trustee(s), or other school authority by whatever name, that member or those members shall perform, as nearly as may be practicable, the functions performed by a corresponding civilian school authority. When such provincial legislation exists the chairman of the school committee (hereinafter called the chairman) shall ensure that he and other members of the school committee have been duly accorded official status as a local school authority in respect of the DND school(s).

(12) Notwithstanding the fact that a DND school or the school committee has been accorded an official status under applicable provincial legislation, the school committee remains responsible to the CO for the administration of the DND school. When, because of its dual status, a school committee encounters a conflict of interests, the chairman will make an appropriate report to the CO who, in turn, may seek direction from AFHQ. Although complete assimilation of DND

schools with provincial schools may be neither practical nor legally possible, in principle a DND school should be administered, as nearly as may be practicable, in the same way as a similar school in the provincial school system.

(13) A member of a school committee shall not become a member of a school trustees' or ratepayers' association unless such membership is mandatory for other school authorities under governing provincial legislation. In such a case his membership fees may be paid from the Casual Expenditures Sub-advance provided for in para (41), but he shall not assume an executive appointment in any such association.

(14) Whenever possible, the local school inspector shall be used as an adviser to the DND school authority on educational matters. The principal and the vice-principal of a DND school may be included as non-voting members of the school committee. When a DND school business administrator has been appointed he shall be the secretary-treasurer of the school committee.

(15) One copy of the minutes of each school committee meeting shall be forwarded promptly to AFHQ Attn DPA for information and review.

ATTENDANCE AT DND SCHOOLS

(16) Educational facilities provided in a DND school shall be made available without charge:

- (a) to children of service personnel residing at a defence establishment, whether the service personnel are occupying public quarters;
- (b) to children of civilian personnel who are employed by the DND, including temporary employees and those employed on an hourly basis during the period of such employment, and who are residing at a defence establishment whether such personnel are living in public quarters;
- (c) to children of personnel mentioned in (a) and (b) if such personnel are residing in the vicinity of a defence establishment and if accommodation in the school is available; and
- (d) to children of personnel other than the aforesaid who are residing in public quarters at a defence establishment.

(17) With the approval of the DND school authority, educational facilities provided in a DND school may be made available without charge if sufficient accommodation in the school is available:

- (a) to children of personnel employed by another government department, or a Crown company of Canada, if such personnel are residing in the vicinity of a defence establishment; and

(b) to children of members of a foreign armed service or of employees of a foreign government present in Canada in connection with their official duties if residing in the vicinity of a defence establishment.

(18) Educational facilities of a DND school may be provided to children, other than those mentioned in paras (16) and (17), who reside in the vicinity of a defence establishment provided that:

- (a) a request is received from the appropriate educational authority;
- (b) sufficient accommodation is available;
- (c) tuition fees are charged for their attendance at rates comparable to those charged by similar schools in the locality; and
- (d) approval of the terms and conditions for such attendance is obtained annually through AFHQ.

STATUS OF STAFF MEMBERS

(19) When a provincially recognized DND school authority employs staff members in a DND school, such members are not persons contemplated in or governed by the Federal Government Employees Compensation Act or the Crown Liability Act. On the other hand, when the staff members are employed by a DND school committee which has not been accorded official status

under applicable provincial legislation, they may be governed by either or both Acts. Nevertheless, to ensure uniform protection all DND school authorities are continuously insured by Comprehensive Liability Insurance contracts covering possible injuries or accidents among DND school children or staff members in order to protect and indemnify the DND school authorities and the Crown in the right of Canada against any resulting liability.

(20) For administrative purposes, staff members of a DND school shall be accorded officer status.

SALARIES OF STAFF MEMBERS

(21) Salary schedules for staff members shall be on a parity with those of comparable schools in the same area or province. Six copies of the complete schedule shall be forwarded annually to AFHQ for approval before the negotiation of salaries is concluded. This shall be accompanied by a supporting statement, if obtainable, from the local provincial school inspector or other appropriate official of the provincial educational authority, and by the supporting information required in the form shown at app A. When approved one copy will be returned to CHQ. Normally, salary schedules should be forwarded before 31 Mar for the following school year.

(22) Contracts shall be negotiated between the DND school

authority and each staff member on the terms and conditions applicable to comparable schools in the province concerned. Contracts shall be completed in quadruplicate, the original being forwarded to the DTO, one copy forwarded to unit SAO, one copy retained by the DND school authority, and one copy given to the staff member.

(23) Business administrators and superintendents of a DND school may be appointed with the approval of AFHQ but only at defence establishments where there are three or more DND schools. Their gross salaries shall be approved annually by AFHQ.

(25) The DND school authority may advertise for teachers in newspapers of their choice without reference to the Queen's Printer. Any expenditure shall be paid out of the Casual Expenditures Sub-advance.

(26) When, because of sickness, quarantine, or other valid reason, a teacher employed at a DND school is unable to perform his or her duties and a substitute teacher is necessary, the DND school authority may employ a substitute teacher on terms comparable with those followed by similar school authorities in the area or province. Payment of teachers who are unable to perform their duties shall be in accordance with the terms of their contract of employment. Financial

procedure for payment of substitute teachers is prescribed in AFAC 210.00/20. The SAO shall be informed when pay entitlement ceases.

(27) No retirement gratuity shall be granted to a staff member for any accumulated sick leave credits.

CURRICULUM

(28) The educational curriculum, including permissive religious instructions, prescribed by provincial legislation shall be followed in a DND school.

(33) Text books, library books, reference books, and supplies shall be procured and accounted for in accordance with CAP 16, Vol. 1, Supply Instructions, chap 21.8, and other instructions issued by CFHQ.

FUNDS FOR LOCAL PROCUREMENT AND SERVICES

(39) Funds for Sports Activities. To provide for the procurement and maintenance of sports equipment, each DND school is entitled to the following allowances:

	Initial Allowance	Annual Maintenance Allowance
For each classroom, including kindergarten . . .	\$50.00	\$25.00

No school shall receive an annual allowance for maintenance in respect of the same fiscal year in which the initial

allowance is received. Accounting procedures prescribed in AFAO 210.00/20 shall be followed.

(40) Funds for Special Classes. An annual amount of \$2.00 per child eligible to attend approved domestic science (home economics) and industrial arts classes at DND schools is authorized for the local purchase of any non-scaled expendable items required by such classes.

MEDICAL AND DENTAL SERVICES

(46) At defence establishments where DND schools are located, the SMO shall advise the CO on heating, lighting, ventilation, and health standards. The MO or the N/S detailed to perform the duties of public health nurse at the schools, or both, shall make periodic visits to the schools and shall assist the school staff in the prevention of disease and the promotion of health among the pupils. Arrangements shall be made for all children and staff members to be tuberculin tested in accordance with the procedure approved for service personnel.

(47) The RCDC may provide without charge, an annual dental examination of children attending DND schools. Requests for this service shall be made by the DND school authority to the local DentO in charge. Any necessary treatment must be procured from civilian sources by parents at their own expense.

(49) A copy of all annual reports on DND schools, including the inspector's report, as required by the provincial educational authorities, shall be forwarded to CFHQ.

PART 111 - NON-DND SCHOOLS IN CANADA

CHILDREN ELIGIBLE TO ATTEND AT PUBLIC EXPENSE

(55) At a defence establishment where the required educational facilities are not provided but are available within a reasonable distance, children of personnel residing at the defence establishment may receive tuition at public expense by following the procedure outlined below, subject to prior approval by AFHQ, provided that the defence establishment is not located in a municipality that receives a school grant therefor from the Department of Finance under the Federal Municipal Grants Act. If such a grant is paid, the recipient municipality is responsible for providing for the education of resident children.

(56) Eligible children will normally be authorized to attend publicly-supported schools with DND either paying non-resident school fees or sharing in the actual educational costs. Usually the latter method applies where a capital assistance agreement or other agreement has been concluded with local educational authorities. Any proposed arrangements for the

education of children that are not covered by this order shall be forwarded to AFHQ Attn DPA for consideration. No commitments shall be made before authority for the arrangement has been granted.

NON-RESIDENT SCHOOL FEES (NRSF) - NORMAL AUTHORIZATION

(57) Procedure for Obtaining Authority. When the required educational facilities are not provided in a DND school but are available at a civilian school by paying NRSF, authority may be requested from AFHQ through CHQ to pay NRSF for eligible children. This authority shall normally be requested prior to the commencement of the school year. Requests shall be submitted in the form shown at app C. When an arrangement has been authorized, subsequent changes in the number of children attending each school may be approved by the AOC.

(58) NRSF - Private Schools. When no DND school has been established but authority has been granted to pay NRSF for eligible children, parents who elect to send their children to a private school may be reimbursed, subject to approval by AFHQ, for tuition costs up to the NRSF rate paid by DND within the district where the defence establishment is situated, less any applicable provincial grant.

(59) NRSF - Payment Procedure. When AFHQ informs the unit

that authority has been granted, payment of NRSF shall be effected on the authority of the CO from funds allotted for this purpose. Normally, payment shall be made direct to the appropriate school board on presentation of accounts, supported by a certification from the CO to the effect that the children concerned are eligible under this order. In special cases, when the NRSF have already been paid by the parents of eligible children, reimbursement may be made for tuition costs only, in whole or in part, upon submission of receipted accounts certified as above.

(6) NRSF shall be paid in arrears. In exceptional circumstances and with the approval of the AOC, NRSF may be paid in advance to local school boards. When personnel vacate MQ before the end of the period for which NRSF have been paid, the CO shall:

- (a) inform the school board concerned; and
- (b) obtain appropriate refunds.

Accounting procedures prescribed in AFAO 210.00/22 shall be followed.

PART IV - TRANSPORTATION

(62) If the required educational facilities are not provided at a defence establishment, transportation for children of

the personnel residing therein to attend a school within a reasonable distance of the defence establishment may, if such attendance has been approved by AFHQ, be authorized as follows:

(a) when public transportation is available, the monthly cost in excess of \$3.00 per child may be paid provided that

(i) the distance from the defence establishment to the school is over 5 miles,

(ii) the cost of such transportation exceeds the cost of normal urban public transportation, and

(iii) no payment is made for that portion of a one-way journey to or from the school in excess of 30 miles;

Note - AFAO 210.00/23 prescribes the procedure for effecting payment of such transportation fees.

(b) when suitable public transportation facilities are not available, the AOC may authorize the CO to provide service transportation facilities necessary for the conveyance of children to attend school; or

(c) when neither public nor service transportation

facilities are available, the AOC may arrange, in accordance with service procedures, through the local agent of DDP to hire private transportation facilities necessary for the conveyance of children residing in public quarters.

EDUCATION

54.00/04 - EDUCATION OF CHILDREN - EUROPE

GENERAL

(1) PC 1956-20/558 of 12 Apr 56 and subsequent amendments authorizes schools for the children of Service Personnel in France, Belgium, UK, the Federal Republic of Germany, and Italy. The schools shall be operated and maintained in accordance with normal Canadian practices and standards.

CHILDREN ELIGIBLE TO ATTEND

(2) Children of Canadian Service personnel and children of Canadian civilians employed on behalf of the Canadian Forces in France, Belgium, UK, the Federal Republic of Germany, or Italy may attend the schools without charge provided that they have not passed their 19th birthday at the commencement of the school year and are able to profit by the instruction offered.

(3) Children who are proven to be detrimental to the school may be refused admittance or expelled on the recommendation of the Superintendent and the approval of the school committee.

(4) Personnel who are not employed by or on behalf of DND may send their children who have not reached their 19th birthday and can profit by instruction to the dependent schools at the rate of \$15.00 per month on the authority of the AOC 1 Air Div providing:

- (a) space is available;
- (b) no extra staff need by provided;
- (c) the school committee concerned recommends;
- (d) dependent children of Canadian Service personnel are given priority; and
- (e) parents are solely responsible for transportation.

OPERATION OF SCHOOLS - SCHOOL COMMITTEES

(5) A school committee shall be formed in each school area and shall perform such duties as may be required for the efficient administration of the school and such other duties as are mentioned in this order. The CO shall appoint such committees. The chairman of a committee shall not be below the rank of S/L.

TEACHERS

(6) A teacher at an overseas school shall be either:

- (a) employed on the recommendations of the Director of Education NDHQ, under an Agreement negotiated between DND, the school board or school committee in Canada at present employing the teacher concerned; or
- (b) employed by the Superintendent of Education for overseas schools as an occasional or supply teacher.

THE DIRECTOR OF EDUCATION

(7) The Director of Education at NDHQ is responsible to the DM for educational standards of the overseas schools.

SUPERINTENDENT

(8) The Superintendent of overseas schools is responsible to the Director of Education for the inspection of overseas schools and such other tasks as detailed by the Director of Education.

SUPERVISING PRINCIPAL

(9) The Supervising Principal of RCAF schools is responsible to the Superintendent of overseas schools and shall carry out tasks as detailed.

GRANTS FOR SPORTS EQUIPMENT

(10) On the authority of the CO, grants towards the cost of procuring and maintaining sports equipment may be made to the school committee, in amounts not in excess of those prescribed in the following table:

	Initial Grant	Annual Maintenance Grant
Each classroom including kindergarten . . .	\$50.00	\$25.00

DEPENDENTS EDUCATION COMMITTEE

(11) The Dependents Education Committee at NDHQ is responsible for general policy on overseas schools.

GRANTS FOR MISCELLANEOUS EXPENSES

(12) At the discretion of the CO a grant may be made to the school committee to cover miscellaneous expenses. Any purchases from this fund may be made by the school committee except purchases of items that are normally authorized through Service channels. The annual expenditures shall not exceed the amounts given in the following scale:

Less than 7 classrooms	\$200.00
Over 6 classrooms but less than 11 class- rooms	\$300.00

Over 10 classrooms but less than 15 class-

rooms \$400.00

Over 14 classrooms \$500.00

(13) No school may receive an annual maintenance grant in respect of the same fiscal year in which the initial grant is received.

SIGNING AUTHORITY

(15) The chairman of the school committee shall be the authorized signing authority for all school documents including claims of teachers.

(16) The AOC may sign financial documents concerning the operation of the dependent schools overseas.

BOOKS AND SUPPLIES

(17) Text books, library books, reference books and supplies will be procured and accounted for in accordance with instructions issued by AFHQ.

(18) The SOMS 1 Air Div shall initiate and ensure that a school public health program is carried out.

DENTAL ARRANGEMENTS

(19) The Officer Commanding the dental unit is responsible, when requested by the school committee, for an annual examination and survey of children at service schools without

cost to the parents. Requests for this service will be made through normal channels to the Officer Commanding the dental unit.

PRIVATE SCHOOLS

(20) Educational allowances will not be authorized for personnel living in the vicinity of a DND school except in special circumstances, and then only with the prior approval of the Dependents Education Committee at NDHQ.

SCHOOL YEAR AND HOLIDAYS

(21) The school year will consist of two terms, the first of which will begin on the first Tuesday of September following Labour Day and will end on the 21st day of December; the second of which will begin on the 4th day of January and end on the 29th of June.

(22) When the 4th day of January is a Friday, the school will not open until the following Monday and when the 29th day of June or when 21st day of December is a Monday, the schools will close on the preceding Friday.

(23) Every Saturday, every Canadian statutory holiday; the week following Easter Sunday, including the second Monday after Easter, and every day proclaimed a holiday by the Superintendent conforming with local practices, and every day upon which the school is closed upon the advice of a medical

officer, will be a school holiday.

RELIGIOUS INSTRUCTION

(24) No pupil shall be required to read or study in or from any religious book, or to join in any exercises of devotion or religion objected to by his parent or guardian.

EXTRA CURRICULAR ACTIVITIES

(27) Subject to the approval of the CO, the school committee may allot school facilities and times to organizations desiring accommodation outside of regular school hours.

(29) Teachers are liable to income tax on the value of public quarters occupied or quarters allowance issued in lieu. Tax will not be deducted at source but the value of public quarters supplied or the allowance in lieu will be reported on Tax For T4 which will be prepared in accordance with instructions issued by AFHQ. As deductions will not be made at source, the Superintendent of Education shall ensure that teachers are advised to make provision for the liability to income tax on this portion of their income.

CHARGES FOR MEALS

(30) A member of the teaching staff shall be entitled to privileges of the officers' mess, including dining facilities. A charge of \$30.00 per month shall be levied for rations and

accounted for in accordance with AFAO F31.12.

TRANSPORTATION AND TRAVELLING EXPENSES

(31) Entitlement to transportation and travelling expenses shall be determined as if the member of the teaching staff held rank in accordance with the following scale:

Superintendent	Wing Commander
Supervisory Principal for RCAF schools and any Principal . . .	Squadron Leader
Other members of a teaching Staff .	Flight Lieutenant

(32) A member of a teaching staff may be provided with transportation and travelling expenses including the transportation and travelling expenses of dependents and storage of furniture and effects at public expense as well as the allowance of interim lodgings and meals on the scale and in accordance with regulations applicable to a single or married officer, as the case may be, of a rank determined in accordance with the scale set out in para (31):

- (a) from his home in Canada to the overseas school in which he is employed and return; and
- (b) from one overseas school to another.

APPENDIX C

THE MILITARY STUDENT OVERSEAS

There have been references to the Department of National Defence Schools overseas in preceding sections of the study, but there are important variations in the National Defence educational system overseas which require a more detailed analysis.

General Features. The official regulations governing the operation and maintenance of Department of National Defence Schools overseas are contained in Air Force Administrative Order Number 54.00/04, relevant extracts from which are included as Part 2 of Appendix B. This order is concerned with Royal Canadian Air Force Schools, but the Canadian Army regulations are essentially similar in content.

The National Defence Schools overseas operate on a different principle from those in Canada. Outside Canada the Department of National Defence assumes the responsibility of "providing the dependents of Canadian military personnel with an adequate education equivalent to Canadian standards,"¹

¹Department of National Defence, DND Education Facilities, p. 4.

whether the parent resides in married quarters or in civilian quarters.

In the 1963-1964 school year there were fourteen National Defence Schools in operation in five countries of Europe.² In Germany there were Army schools at Soest, Hemer and Werl; Royal Canadian Air Force schools were located at Ramstein, Baden-Soellingen and Zweibrucken. In France all schools were operated by the RCAF, the locations being at Metz, Gros-Tenquin, Marville, Fontainebleau and S.H.A.P.E. Headquarters. There was one Army school at Antwerp in Belgium, one RCAF school at Langar in England, and one RCAF school at Cagliari Air Base in Sardinia.

Capital Costs of National Defence Schools are lower overseas than in Canada, because in Canada the Department of National Defence must bear the full cost of building a school for military dependents. In France the schools are built by private enterprise and leased to the Canadian Government, while in Germany the Canadian Government pays ten percent per annum of the total cost of school construction. But if the capital costs are lower the operating costs are considerably higher. In Table XLIV the operating costs may be compared

²Ibid., p. 6.

for Canadian and overseas schools maintained by the Department of National Defence. It is immediately apparent that the relative cost per student is almost fifty percent greater in Europe than in Canada. Undoubtedly much of this difference is the result of the higher teacher-pupil ratio of 1:17

TABLE XLIV

SIZE AND OPERATING COSTS OF NATIONAL DEFENCE SCHOOLS
IN CANADA AND OVERSEAS, 1963-1964

	Canadian Schools	Overseas Schools
Number of Schools	64	14
Number of Teachers	1,391	438
Number of Pupils	32,527	7,411
Operating Costs	\$ 10.46M	\$ 3.87M

overseas, compared to 1:23 in National Defence Schools in Canada.

The Department of National Defence employs supervisory staff and teachers for its overseas schools under an unusual agreement; the teacher or principal continues to be paid by the school board which employed him in Canada, and the school boards are reimbursed by the Department of National Defence.

This procedure ensures that the superannuation rights of the teaching staff are safeguarded and that the teacher can return to his own school board with no loss of seniority rights.

Curriculum Overseas. From Kindergarten to Grade VI, a composite curriculum is followed which is designed to "minimize any difficulties experienced by dependents of personnel moved from the various provinces of Canada to overseas schools and re-adaptation on return to Canada."³ From Grade VII to Grade XIII the National Defence Schools overseas follow the curriculum of the Province of Ontario. The Ontario Department of Education grants their diplomas and certificates to all students who have qualified for them in National Defence Schools. Ontario is the only province which would accept such a responsibility.

Officially, English is the language in which the curriculum is taught. When French-speaking regiments are transferred to Europe classes in French are provided at the Army Brigade, but no classes are conducted in French in any school under RCAF operation. Conversational French begins officially at the Grade II level, although some schools have introduced it at Kindergarten level. Religious instruction in the

³ Ibid., p. 4.

National Defence Schools overseas is in accordance with the regulations currently in force in the Province of Ontario.

It would seem that overseas an attempt is made to alleviate hardships caused by the transfer of military personnel, both by the composite curriculum of the early grades and by the provision of a uniform high school curriculum. The military student who completes his high school career in Europe by obtaining a Grade XIII Diploma of the Province of Ontario will have little difficulty in being accepted by most universities in Canada. Similarly, the high school students transferred between Ontario and Europe should be relatively free from any curriculum difficulty. But students who are transferred between Europe and the other provinces of Canada have the same problems as those students transferred within Canada.

As the analysis of high school graduation requirements has shown, there are great difficulties in organizing a common high school curriculum similar in principle to that offered overseas in the first six grades of elementary school. That such a program is not completely outside the bounds of possibility is shown by the existence of the Department of Veterans Affairs correspondence courses for personnel of the Armed Forces and the Civil Service. Standing on these courses

at the secondary level is recognized and given credit by the Province of Nova Scotia, Prince Edward Island, Manitoba, Saskatchewan, Alberta, British Columbia and Ontario, while Quebec (Protestant) will accept individual subjects for evaluation. The incorporation of the content of these courses into a common high school curriculum for National Defence Schools should not present insurmountable difficulties, since the courses were originally compiled by drawing on the curricula of the various provinces.

APPENDIX D

COLLEGIATE QUESTIONNAIRE

NAME: CLASS:

Your Parents' assistance may be needed for Section 1, but
 please complete the remainder unaided - YOUR views are wanted.

I. Schools attended in Educational Career (Working back from Collegiate)

	<u>School</u>	<u>Province</u>	<u>From DATES to</u>
1.	Collegiate.....	Manitoba.....	 - November 64
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

II. Extra - curricular School Activities participated in at Collegiate. Tick (x)

(a) Biology Club () (d) Drama Club () (g) Stud. Council ()
 (b) Cheerleaders () (e) Football () (h) Volleyball ()
 (c) Yearbook () (f) Science Clb () (i) Debating Club ()
 (k) Others?

III. If working on a class project which two members of your class would you most like to work with? a b

IV. What factors, if any, do you feel have had an unfavourable effect on your education?

APPENDIX E

LETTER TO COLLEGIATE PRINCIPAL

Box 91,
Rivers Camp Manitoba,
27 April, 1964.

Dear Sir:

Following our recent conversation the following notes are appended concerning my proposed M.Ed. thesis for the University of Manitoba:

- A. The subject of the thesis is the educational problems of DND children, particularly high-school age.
- B. With the permission of the School Board the cooperation of your collegiate would be required in having a questionnaire completed by all students. In addition access to school records would be necessary. Naturally, full privacy would be maintained and no addresses or recognizable names would appear in the thesis.
- C. This is entirely a private undertaking for the University of Manitoba by myself. However, the approval of the Official Trustee of the Brooke School Board has been obtained to ensure cooperation in completion of the questionnaire.
- D. The Dean of the Faculty of Education has intimated that a thesis on this subject will be acceptable to the Graduate Studies Faculty.

If any further information is required I shall be glad to furnish it. In conclusion I believe the results of such a thesis would be of interest and value to all concerned with the education of high-school students.

Yours sincerely,

A.K. Clark

APPENDIX F

COMPUTATION OF CHI-SQUARE TEST OF SIGNIFICANCE

The chi-square test is based on a comparison of observed frequencies with frequencies expected on the basis of some hypothesis. To illustrate the application of the chi-square test the following data are reproduced from Table IX.

	Military	Civilian	Totals
Discipline Infractions	21(13)	7(15)	28
Nil Infractions	<u>134</u> (142)	<u>162</u> (154)	<u>296</u>
	155	169	324

Of the 324 students for whom records were available in June 1964, twenty-eight were delinquents and 296 were not. Twenty-one out of 134 military students and seven out of 169 civilian students were delinquents. The null hypothesis (H_0 : 2.3) states there is no significance difference between these two groups on this distribution.

The first step is to compute the frequencies expected on the basis of the null hypothesis. It is known that 28/324 of the whole group are delinquents. If the null hypothesis is correct this proportion should hold for any sub group. Hence, 28/324 of the 155 military students, i.e., thirteen, should also be delinquents. This expected frequency may be

placed beside the observed frequency of twenty-one military delinquents. By subtraction from the row and column totals the expected frequencies of the other three cells of the table are obtained and recorded. The formula for chi-square is:

$$x^2 = \frac{(f_o - f_e)^2}{f_e} \quad \text{where } f_o - f_e \text{ is regarded as positive}$$

$\frac{(f_o - f_e)^2}{f_e}$ is not calculated for each cell of the table.

Yates correction is made by subtracting 0.5 from each $(f_o - f_e)$ before squaring. It is noted that $t_o - t_e$ is eight for each cell, therefore the corrected value is 7.5.

The calculations are as follows:

$$\frac{7.5^2}{13} = 4.320$$

$$\frac{7.5^2}{15} = 3.750$$

$$\frac{7.5^2}{142} = .396$$

$$\frac{7.5^2}{154} = .365$$

The sum of these values gives an x^2 value of 8.83. Since the entry of one cell automatically determines the values of the other three cells our sample table has one degree of freedom. A table of x^2 values is now entered with the computed value of x^2 and one degree of freedom to determine the probability that the obtained x^2 is significant. With one degree of freedom an x^2 value of 8.83 has a probability below .01. The rejection level of null hypotheses in this study is a