2. Graduate Outputs and Attainment

Indicators of graduate outputs and attainment are important measures for any system of education. These measures allow the system to target areas of concern in the content and delivery of postsecondary programs, focusing efforts on areas where attainment is below expectations. By measuring and reporting the extent to which students are graduating and performing relative to systems of education elsewhere and relative to past performance, these indicators highlight our successes and provide key information for areas that may not measure up to the standards required in today's competitive job market.

This chapter reports on graduation and performance in university programs and in selected college programs. It also examines how well our graduates perform on a variety of national certification examinations which determine professional designations as well as the Red Seal certification program in the area of apprenticeship training. Finally, the section reports on high school attainment of mature students through the GED tests.

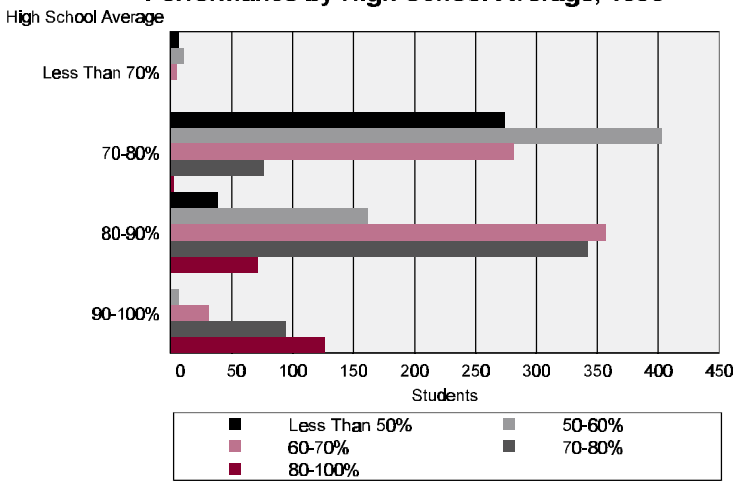
Most data provided in this chapter are reasonably current. By most standards the information is one or two years more current than would normally be expected, for example, in a similar national report. However, data on college system graduates are often difficult to compile and compare in a meaningful way since programs do not always conform to a standard semester system. Colleges offer continuous entry to many programs, programs vary in length and students may leave a program before it would normally be complete in order to avail of employment opportunities which may be time-sensitive. Consequently, data may not be as current as for the university or public school system. For most of the indicators presented in this publication, the most current data on the public and private colleges that are available are for the 1995/96 year which runs from September 1995 to August 1996. A comparison year, 1989/90, is included to provide a historical benchmark against which to evaluate a given measure.

2.1 How does achievement at university compare to high school achievement?

Strong levels of performance in high school courses have been linked to strong performance at the postsecondary level. The top academic students in high school can be expected to perform well in college or university. There are, however, a substantial number of university students who achieved at moderate to strong academic levels in high school, yet meet with limited success in their first term at university.

Figure 2.1.1 provides an analysis of university academic performance in the fall semester at Memorial University based on performance in high school. The high school average is defined as the average in the high school courses required for admission to university. The chart shows the fall university average by high school average for students who enrol directly from high school. As expected, the distribution shows most of the highest achieving

Figure 2.1.1: Memorial University First-Term Academic Performance by High School Average, 1996



Source: Centre for Institutional Analysis and Planning, Report 97-01, Memorial University

first-year students came into university with high school averages between 90% and 100%. Of this group 49% achieved a university average between 80% and 100% in the fall semester. This compares to 7.3% for the freshmen with 80% to 90% high school averages. There were virtually no students achieving university fall averages between 80% and 100% from the group with high school averages less than 80%.

Almost 40% of first-year students received a fall average of less than 60% and 13.9% failed to achieve a 50% average, the minimum standard required in undergraduate programs at Memorial. Among those achieving less than a passing average, 86.2% were from the group that achieved an average of between 70% and 80% in high school. In general, the minimum entry requirement to Memorial University is a high school average of 70%. Conversely, there were no university averages below 50% among those students who performed in the top ten percent of high school graduates.

The fact that more than 40% of new university students who achieved averages between 70% and 90% in high school received less than a 60% average in university is cause for concern. The transition from high school to university can often be difficult. Not all students who meet university entrance requirements are ready for the challenges of a university program. Nevertheless, with such a large number of new students experiencing academic difficulty in their first semester, there is a clear need to focus attention on this problem. An examination of the specific courses where there is significant performance declines when compared with high school achievement might be one course of action.

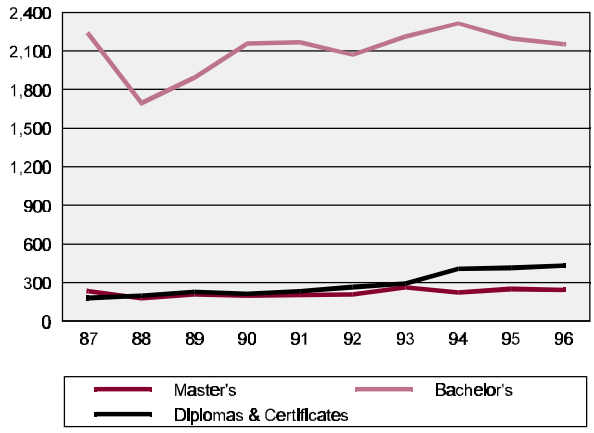
This situation needs to be closely monitored on the K-12 side also, to ensure appropriate standards are in place for graduating students. Poor performance in first semester courses raises questions about whether school-based marks are an accurate reflection of student achievement across schools in the system.

2.2 How many university students graduate with a degree or diploma each year?

In addition to the traditional academic Bachelor's, Master's and Doctoral degrees, Memorial University confers degrees in medicine and awards diplomas and certificates in a number of professional programs. Diplomas are awarded in Business Administration, Educational Technology, School Resource Services and Vocational Education, as well as other areas. Certificates are primarily awarded in Business Administration, Criminology, Municipal Administration and Public Administration, among others.

Memorial University conferred an average of 2,407 degrees a year during the ten-year period (Figure 2.2.1) 1987 to 1996. The largest number was at the Bachelor's level constituting, on average, about 87.6% of all degrees given in any one year. The number of Master's degrees conferred fluctuated somewhat over the period. In 1987, 232 Master's degrees were awarded. The number of degrees dropped to 179 in 1988 and remained under 200 until 1993 when the number of Master's degrees awarded peaked at 260. There were slightly fewer Master's degrees awarded over the last three years, just under 250 per year. On average, during the period, 22 academic doctorates (Ph.D.) and 55 medical degrees (M.D.) were conferred each year. The number of

Figure 2.2.1: Degrees, Diplomas and Certificates Conferred, Memorial University, 1987-1996

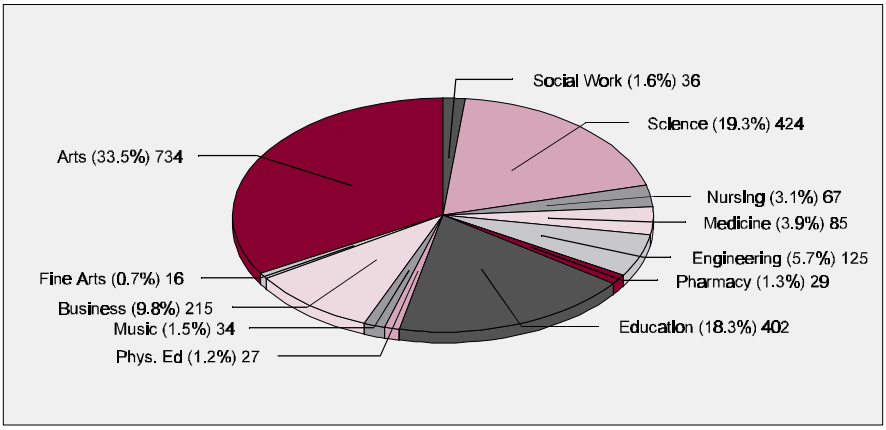


Source: Memorial University Fact Book, 1990/91 and 1996

graduate degrees, including medical degrees, was 12.4% a year, on average, for the ten-year period.

The pattern of undergraduate Bachelor's degrees fluctuated during the period. Prior to 1986 there was a steady rise in the number of undergraduate degrees awarded. In 1988, a sharp drop occurred but the number of degrees continued to increase over the next two years. Except for a slight decline in 1992, the pattern of annual increases in the number of degrees conferred continued into 1994. Since 1994, the number of undergraduate degrees awarded has been in decline.

Figure 2.2.2: Undergraduate Degrees Conferred by Faculty/School, Memorial University, 1996

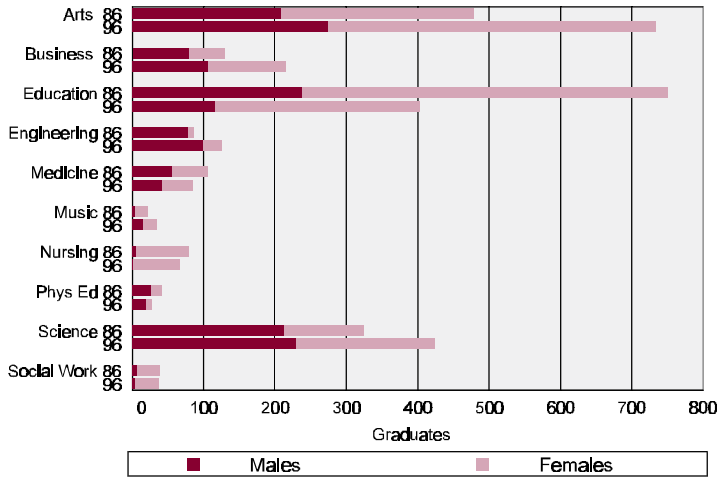


Source: Memorial University Fact Book 1996

The sharp decline of 1988 is attributed to the drop in first-year university enrolment five years earlier. In September 1983, Grade 12 was introduced into the K-12 system. It had the effect of halting the normal influx of first-year university registrants in September of that year. For September 1983, total first-year undergraduate enrolment at Memorial University declined by 59% from the previous year: 1,466 in 1983 compared to 3,568 in 1982

On average, over the 10 years examined, Memorial University also awarded 286 diplomas and certificates per year in a wide range of professional programs. More certificates than diplomas were awarded each year primarily in Business Administration, Public Administration and Criminology. On average, these three programs accounted for 91.3% of all certificates awarded over the last five years. Correspondingly, the most heavily subscribed programs at the diploma level were Business Administration, School Resource Services and Vocational Education which, on average, accounted for 78.6% of all diplomas awarded each year for the last ten years.

Figure 2.2.3: Graduates in Specific Programs by Gender, Memorial University, 1986 and 1996



Source: Memorial University Fact Book 1988/89 and 1996

In 1996, the majority of degrees (52%) went to students from the Faculty of Arts and the Faculty of Education (Figure 2.2.2), a pattern which stayed consistent over the ten-year period. However, the proportion of degrees in Education has decreased substantially over the period (Figure 2.2.3). In 1996, nearly 35% of all degrees conferred were either Business, Engineering or Science degrees. It is also clear that a greater proportion of

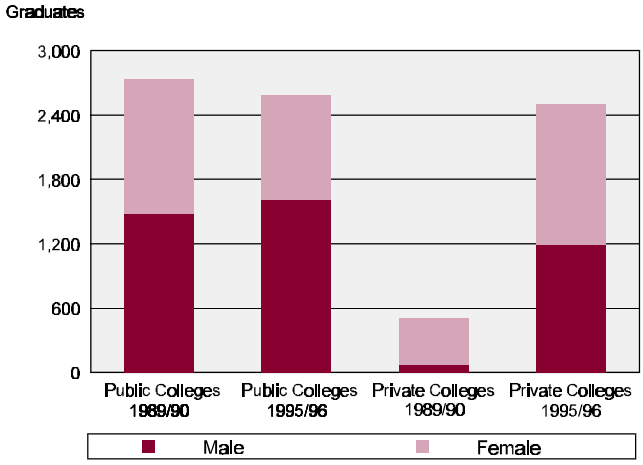
graduates are studying in non-traditional disciplines for their gender. For example, Figure 2.2.3 shows that while there has been an overall shift in the number of graduates from different disciplines, whereby more students are graduating with Science, Engineering and Business degrees, there has also been a gender shift. The majority of the increases in these areas can be accounted for by female graduates.

2.3 How many students graduate with a college diploma or certificate each year?

The college system in this province includes the public college which until 1997 was administered as five separate institutions, and the private colleges or private training institutions. There are several main private colleges with more than one campus, a number of smaller institutions and some which specialize in one or more particular programs. The analysis in this section is based on data from the seven main program clusters as described in Box 2.3: Trades; Engineering Technology; Health Sciences; Applied Arts/Social Sciences; Natural Resource Studies; Fisheries and Marine Studies; and Business Studies. Until recently, programs in the Natural Resource Studies and Fisheries and Marine Studies clusters were offered only by the public college sector, while both sectors offered programs in the remaining program cluster areas. However, by 1995/96 there were some graduates from these programs who had graduated from the private colleges.

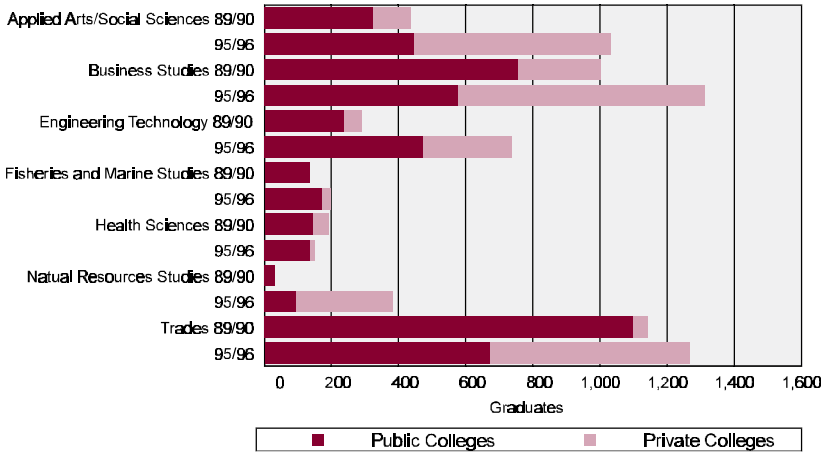
The profile of college graduates in 1995/96 was markedly different from that of 1989/90 in terms of overall numbers, gender, institution attended and program completed. Figure 2.3.1 shows the number of students graduating by gender and college sector for 1989/90 as compared to 1995/96. In 1989/90 the public college system produced 2,728 graduates; more than 84% of all college graduates. Most graduates were male, largely because the Trades made up a significant part of the public college system and the Trades were programs with males accounting for almost 80% of graduates. In 1989/90 the public colleges trained more graduates than the private

Figure 2.3.1: Number of Public[1] and Private College Graduates by Gender, 1989/90 and 1995/96



1. Includes Marine Institute.

Figure 2.3.2: Graduates by Program Cluster as a Percent of Total Graduates, Public[1] and Private Colleges, 1989/90 and 1995/96



1. Includes Marine Institute.

Box 2.3 - PROGRAM CLUSTERS: WHERE COURSES AND PROGRAMS FIT

Applied Arts/Social Sciences

Commercial Baking
Community Recreation Leadership
Community Studies
Cooking
Crafts
Criminology
Cultural Resource Management
Dance Teacher Training
Diploma of Music Program
Early Childhood Education
Food Administration
Garment Construction & Design
Graphic Design
Heritage Crafts
Hospitality Administration
Hotel/Motel Restaurant Operations
Human Service Worker
Independent Studies in Textiles
Journalism
Law and Security
Multimedia Production
Music Technician
Native Crafts & Retail Sales
Paralegal Technologies/Legal Studies
Photography Studies
Printing Technology
Protection & Correction Services
Regional Economic Development
Secondary Processing
Security/Police Sciences
Social Work Assistant
Taxidermy
Textile Studies
Tourism Development Officer
Travel Counsellor
Visual Arts
Woodworking

Health Sciences

Cytology
Dental Assistant
Diagnostic Ultrasonography
Dispensing Optician
Massage Therapy
Medical Laboratory Sciences
Medical Radiography
Nursing Assistant
Pharmacy Assistant
Respiratory Therapy

Engineering Technology

Aircraft Maintenance Engineering
Appraisal Assessment Technology
Architectural Engineering Technology
Automotive Technology
Civil Engineering Technology
Computer Applications & Electronics
Computer Drafting Technology
Computer Programming
Computer Science
Computer Support Specialist
Computer Technology
Computer Aided Drafting
Degree Enhancement Computer Studies
Electrical Engineering Technology
Electromechanical Technician
Electronics Engineering Technician
Food Production Quality
Geomatics Engineering Technology
Industrial Engineering Technology
Industrial Instrumentation
Mechanical Engineering Technology
Micro Computer Specialists
Microcomputer Electronics
Microcomputer Maintenance Techniques
Microcomputer Software and Service Specialist
Petroleum Engineering Technology
Welding Engineering Technology

Fisheries and Marine Studies

Advanced Diploma in Fisheries Development
Agrifoods/Entrepreneur
Aquaculture
Crab Plant Supervisor Training
Fisheries Development
Inshore Fisheries Resource Assessment
Marine Diesel Mechanic
Marine Engineering Technology
Marine Environmental Technology
Marine Systems Design
Mechanical Engineering Technology (Marine)
Nautical Science Technology
Naval Architecture Technology
Pre-Sea Deckhand
Quality Control for Food Processors
Seafood Processing Technology

Box 2.3- PROGRAM CLUSTERS (Cont'd.)

Trades

Air Conditioning
Auto Body Repair
Avionics
Barber/Hairstylist
Boilermaker
Bricklaying
Building Construction
Carpentry & Joinery
Commercial Helicopter License
Commercial Pilot License
Commercial Transport
Computer Aided Design
Construction Surveyor
Cosmetology Studies
Crane Operator
Diesel Mechanics
Diesel Station Technician
Driller/Blaster
Electrical (Basic)
Electrical Power Utilities
Electronic Service Technician
Entrepreneurship in Cosmetology
Esthetics
Furniture Technology
Gas Tungsten ARC Welding
Heavy Equipment Operator
Heavy Equipment Repair
Industrial Electrical
Industrial Trades Technician Program
Locksmithing
Machinist
Millwright/Industrial Mechanical
Motor Vehicle Repairer
Non-Destructive Testing
Offshore Crane Operator
Offshore Structural Steel/ Plate Fitter
Oil Burner Mechanic
Operating Lineman
Plumbing & Domestic Heating
Power Engineering
Refrigeration & Air Conditioning
School Bus Operator
Sheet Metal Worker
Small Equipment Repair
Steamfitter-Pipefitter
Structural Fitter
Truck/Transport Repair
Upholstery
Welding

Business Studies

Accounting & Bookkeeping
Banking and Financial Services
Business & Office Management
Computer Studies
Computer Technician
Data Processing
Entrepreneurial Studies
Executive Office Administration
Food Administration
Food Marketing Management
Hospitality and Computer Applications
Income Tax Specialist
Informatics
Information Technology Operator
Legal Office Administration
Marketing

Natural Resource Studies

Adventure Tourism
Agrifoods Processing/Business Development
Bridge Resource Management
Conservation Management
Environmental Engineering Technology
Environmental Technology
Field Exploration Technician
Forest Ranger
Forest Resources Technology
Geological Field Exploration Worker
Mineral Technology
Natural Resource Technology
Outdoor Guide
Water Resource Technology
Wilderness Sports/Tour Guide Training

system in every program cluster. The most current data show this situation has changed dramatically. The private college sector with just over 500 graduates in 1989/90 increased the number of graduates it produced to 2,499, slightly more than 49% of all college graduates, by 1995/96. In the meantime the public college, which showed only a slight drop in their actual number, decreased their share of graduates from 84.4% to 50.7%. The number of private college graduates increased nearly 400% over the six-year period.

While the majority of private college graduates continued to be female, the proportion of females has decreased over time. In 1989/90, 86.3% were females compared to just over 52% in 1995/96. Most females continue to graduate from Business Studies, Health Sciences or Applied Arts/Social Sciences programs in both the private and the public systems. Significantly, more males in both systems graduate from the Trades and Natural Resource Studies. In the public colleges, most of the graduates in Engineering Technology are males while in the private colleges there are slightly more female graduates in this cluster.

Figure 2.3.2 illustrates the number of graduates by program cluster and college sector for 1989/90 as compared to 1995/96. The relative proportions of graduates by program cluster for 1995/96 indicate 28.9% of graduates are from Business Studies programs, followed closely by approximately 25.0 % in the Trades and almost 20.3% in the Applied Arts/Social Science area. Engineering Technology accounted for 14.5% of graduates followed by Natural Resource Studies at 7.5%. Nearly four percent graduated from Fisheries and Marine Studies and 3.0% from Health Studies.

Overall there were 1,842 more students graduating from the colleges in 1995/96 than in 1989/90 but this increase is entirely accounted for by the emergence of the private college sector in Newfoundland. The private colleges made gains in all program areas with the most significant gains in Applied Arts/Social Sciences, Business Studies, Trades and Natural Resource Studies. The actual number of public college graduates decreased in the Trades, Business Studies and Health Sciences while increasing in all of the other program clusters.

The significance of this shift in patterns of postsecondary graduation can be partly explained by the waiting list problems experienced by the colleges in the early 1990s when the demand for college programs was on the rise. Enrolment pressures caught colleges by surprise and the demand led to longer waiting lists. Additional private colleges were established that offered an alternative to students who had been placed on waiting lists for the programs they wanted in the public college system. While the waiting list problems that did exist have by now been largely addressed, that situation and the response of the private colleges to the rise of contract training had the result of creating an established alternative to the public college system.

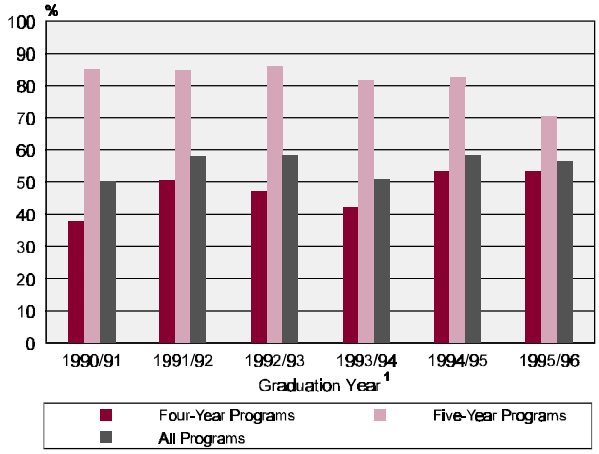
A great deal of contract training and other federally-sponsored training programs also became available to those receiving government support payments through Human Resource Development programs. Individuals using the Unemployment Insurance, NCARP or TAGS programs were eligible for educational support to upgrade their skills and/or retrain. Many private colleges were established in areas where those seeking educational programs could avail of them. As a result the number of private college campuses in the Province grew considerably.

For these reasons, the postsecondary system experienced an increase in the proportion of graduates from the two college sectors. The overall result was that the annual number of graduates from all programs covered by the seven program clusters increased by 57.0% over 1989/90. As seen in Chapter 3: Educational Attainment, this increase is demonstrated in Statistics Canada's recent *Labour Force Survey* estimates of the educational attainment levels of the Newfoundland population and in particular, of the 20-34 year-old group.

2.4 How successful is Memorial University in graduating students?

Graduation is defined as "meeting all the requirements for an undergraduate Bachelor's degree". The graduation rate for Memorial University was calculated by determining the number of undergraduate degrees awarded each spring as a percentage of second year enrolment four or five years earlier. This procedure for calculating university graduation rates is the one used by Maclean's magazine in their annual publication of selected university statistics and

Figure 2.4.1: Graduation Rate in Four-Year and Five-Year Undergraduate Programs, Memorial University, 1990/91 - 1995/96



Source: Centre for Institutional Analysis and Planning, Memorial University

1. Based on second year enrolment four years earlier for four-year programs and five years earlier for five-year programs. For example, the graduation year 1995/96 refers to the number of second year students enrolled from May 1991 to April 1992 who graduated from four-year programs by July 1, 1995 or from five-year programs by July 1, 1996.

has become an accepted method. It should, however, be noted that this definition does not account for the attrition of students that occurs in first year and which can be substantial. Although technically most undergraduate programs are described as four-year programs and the definition assumes a four-year duration for the completion of a Bachelor's degree, it is known that the average time required for most students to complete their undergraduate studies is greater than four years.

Figure 2.4.1 provides graduation rates in four and five-year undergraduate programs over the period 1990/91 to 1995/96. Five-year programs included the cooperative degree programs, such as Engineering and Business where students spend several terms in occupational placements as part of their program of studies. As can be seen from the chart, graduation rates in four-year programs were somewhat unstable fluctuating between 38% and 53% while rates in the five-year programs were relatively consistent, exceeding 80% for each of the first five years in the period examined. When combined, the rates for four and five-year programs ranged from 50% to just over 58%. The most current combined rate was 56.5%.

Comparative graduation rates using this definition for other provinces were not available at the time of this report preparation. However, Section 2.5 provides university graduation rates by province using a definition developed by Statistics Canada.

Memorial has examined the performance of its 1990 cohort of students in a recent publication entitled *"Performance of Fall 1990 First Year Students - A Longitudinal Study"*. In this report, an analysis of a group of 3,041 students entering university in fall 1990 is presented. Five years later in fall 1995 only 21.9% of the original group had graduated while an additional 23.3% were still registered in pursuit of their first degree. The report notes that 61.7% of students, underwent a period of "stop-out" where they ceased to be enrolled for one or more semesters over the five-year period. In fact, the university estimates that, in total, only about 40% of the cohort will eventually graduate. Given Memorial's detailed follow-up of the 1990 cohort, the graduation rates cited using the methodology employed in Postsecondary Indicators '98 do not seem unreasonable. However, it should be noted that first-year attrition rates, which are known to be high, were not included in the calculation.

Reasons for the relatively low graduation rates are speculative. Strong performance in university achievement has been clearly linked to performance in high school. Students who graduate in four years or less typically achieved an average high school grade of about 80%. Other factors may be related to the high percentage of "stop-outs at Memorial. It is clear that students who do not continue, semester to semester, have a reduced likelihood of graduating that those who progress in an uninterrupted manner. In the current economic climate it is likely that financial pressures rather than employment opportunities lead to stopping out, but students have not yet been surveyed to establish this.

Finally, the high attrition levels among first-year students exert considerable influence on the eventual number of graduates from any cohort. Approximately 33% of first-years from the entering 1990 cohort dropped out of university. It should be noted, however, that the

1990 cohort of students would have entered university under a 60% course average admission requirement. Since that time the university has increased the minimum admission requirements to a 70% average in high school courses.

2.5 How does our university graduation rate compare with other provinces?

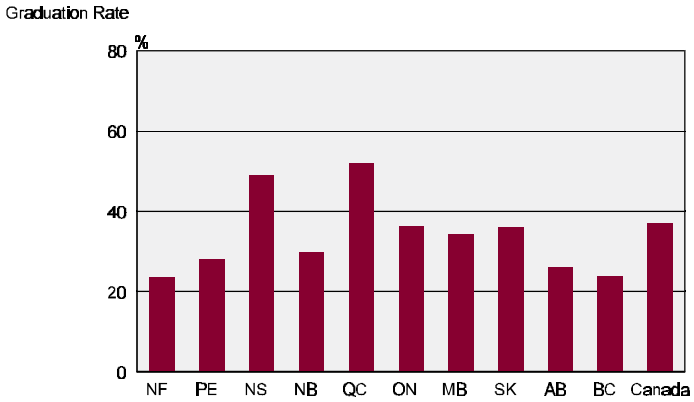
Another indicator of university attainment is the university "graduation rate" in relation to the population. Statistics Canada defines university graduation rate as the number of undergraduate degrees awarded as a percentage of the population aged 22. Figure 2.5.1 provides an interprovincial comparison of university graduation, defined in this manner, for 1994/95. The rates ranged from 23.5% in Newfoundland to 52% in Quebec with an overall Canadian average of 37.0%.

Despite a marginal increase in university graduation rates for four-year programs, this province's university levels are still significantly below the national average. Given the positive link between university completion and employment, low levels of university attainment are reason for concern in a province with such a high rate of unemployment.

2.6 How well do students achieve at university?

The pattern of university achievement among individual students is often established early in their university careers. For this reason performance levels of first-year students provide a useful indicator of overall university achievement. Figure 2.6.1 illustrates the proportion of first-year students in various course average categories over the period 1993 to 1996. Most students (approximately 30%) fell into the 60% to 70% average category in each year except 1994 when overall student performance was significantly lower than in each of the other years. The overall course average has increased over the period with a higher proportion of students achieving course averages in the 60% to 70%, 70% to 80% and above 80% categories, particularly in 1995 and 1996. For example, as compared with 23% in 1993, 31% of first-year students achieved an

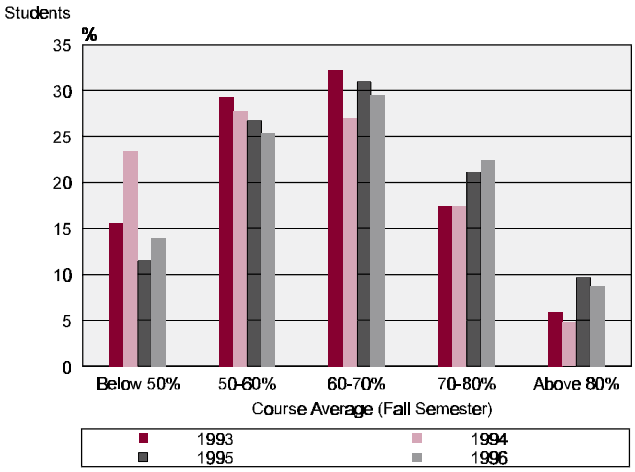
Figure 2.5.1: University Graduation Rate[1], Newfoundland, Canada and Provinces, 1994/95



Source: Statistics Canada, Catalogue no. 81-003-XPB, Vol. 3, no. 4

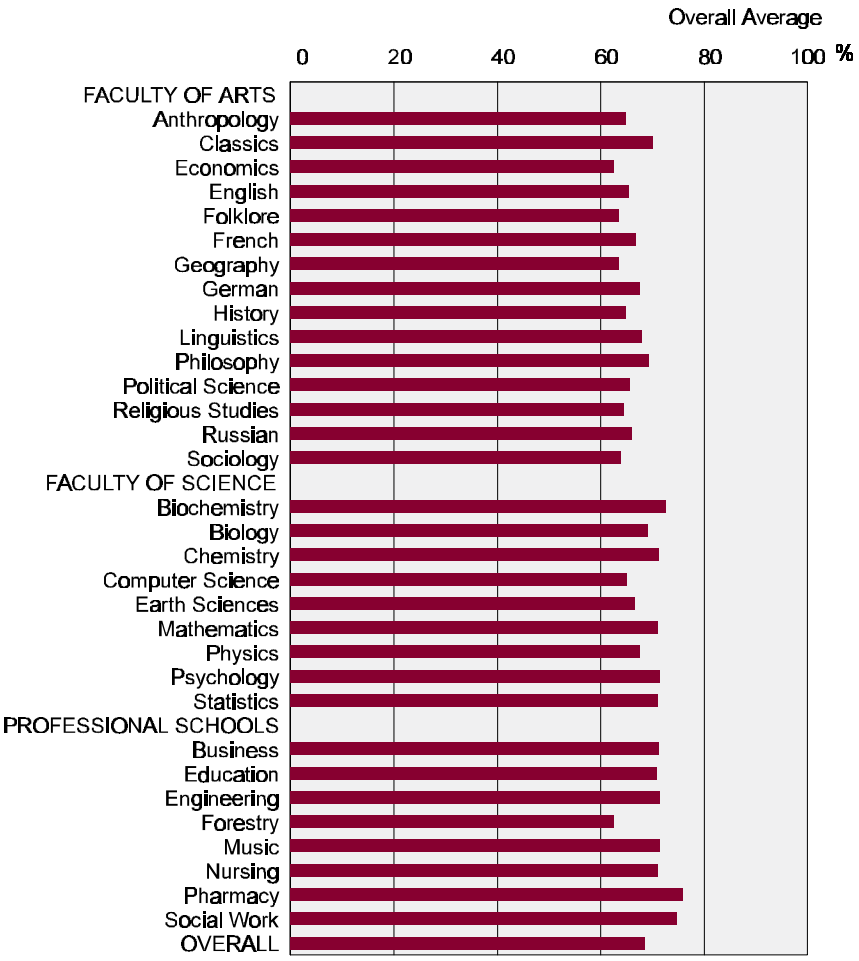
1. Defined as the number of undergraduate degrees awarded as a percentage of the population, aged 22.

Figure 2.6.1: Performance of First-Year Students in Fall Semester, Memorial University, 1993-1996



Source: Department of Education and Centre for Institutional Analysis and Planning Reports 96-01 and 97-01, Memorial University

Figure 2.6.2: Achievement of Undergraduate Students by Program, Newfoundland, 1996



Source: Centre for Institutional Analysis and Planning Report 97-01, Memorial University

Note: Averages calculated for fall term, 1996.

overall course average of 70% or above in 1996. Similarly over the same period the proportion of students with fall averages below 60% decreased from 45% to 39%.

It should be noted that fall 1994 entrants to Memorial did not have to satisfy the 70% high school average entrance requirement because a teachers' strike the previous spring resulted in the cancellation of final examinations. This may explain the unusually high number of failing grades in 1994.

Performance of undergraduate university students who have declared a major is shown in Figure 2.6.2. Fall 1996 course averages by university department and faculty show relatively consistent performance across disciplines. Slightly higher course averages are seen in some of the sciences and professional schools but these are marginal. The overall fall average for these students was 68.5%.

2.7 How successful are public colleges in graduating students?

The calculation of a meaningful graduation rate from programs in the public college system is somewhat problematic for a number of reasons. Issues such as "stop-outs", students who resume a program of studies after one or more years of absence, and students who switch programs, present challenges to the calculation of a graduation rate. After considering these issues the most appropriate definition is probably the simplest. Graduation is defined as the number of graduates as a proportion of the number entering a program. Students who drop out of a program before the academic prejudice date are excluded from the calculation and rates are provided over at least four years. It is necessary to view these indicators over multiple years since a single year rate may be subject to influences that may bias the rate for that year, particularly in programs with low enrolments.

For the purpose of this comparison, three-year and several four-year programs are examined over the period 1991 to 1997 in four program clusters (see Box 2.3): Business Studies; Engineering Technology; Fisheries and Marine Studies; and Health Sciences. Table 2.7.1 and Figure 2.7.1 summarize these data. The table shows the number of graduating students by graduating year for each group of programs and the number who began the program three or four years earlier.

Table 2.7.1: Number of Students Entering and Completing Three-Year and Four-Year Public College Programs by Program Cluster, Newfoundland, 1991-1997

	Business Studies	Engineering Technology	Fisheries and Marine Studies	Health Sciences
Students Entering in 1988		184	113	
Graduates in 1991		76	23	
Graduation Rate		41.3	20.4	
Students Entering in 1989	143	489	90	76
Graduates in 1992	65	176	37	51
Graduation Rate	45.5	36.0	41.1	67.1
Students Entering in 1990	143	541	75	84
Graduates in 1993	65	211	27	35
Graduation Rate	45.5	39.0	36.0	41.7
Students Entering in 1991	122	648	66	92
Graduates in 1994	62	21.8	24	40
Graduation Rate	50.8	33.6	36.4	43.5
Students Entering in 1992	122	680	78	85
Graduates in 1995	67	282	26	34
Graduation Rate	54.9	41.5	33.3	40.0
Students Entering in 1993	125	589		101
Graduates in 1996	90	229		44
Graduation Rate	72.0	38.9		43.6
Students Entering in 1994	133	637		69
Graduates in 1997	90	286		38
Graduation Rate	67.7	44.9		55.1

Overall, graduation rates were highest in the Business Studies programs ranging from 45.5% in 1992 to 72.0% in 1996. The graduation rate in the Business Studies programs fell slightly to 67.7% for 1997. Rates in the areas of Engineering Technology and Fisheries and Marine Studies fluctuated around 35% to 45% over the same period, although rates did fall outside this range. The graduation rate for Health Sciences programs dropped substantially from their 1992 level of 67.1% to between 40% and 45% from 1993 to 1996 The 1997 graduation rate, however, increased to 55.1%.

Generally rates between 35% and 70% are characteristic of three-year public college programs and these are consistent with graduation rates seen for university four-year programs based on enrolment in second year.

While no comparative data exist for similar programs in other provinces these rates indicate a significantly high level of student attrition from public college programs and clearly identify an area for attention. The recent establishment of a single public college system for the Province provides the opportunity for a unified approach to addressing the problem.

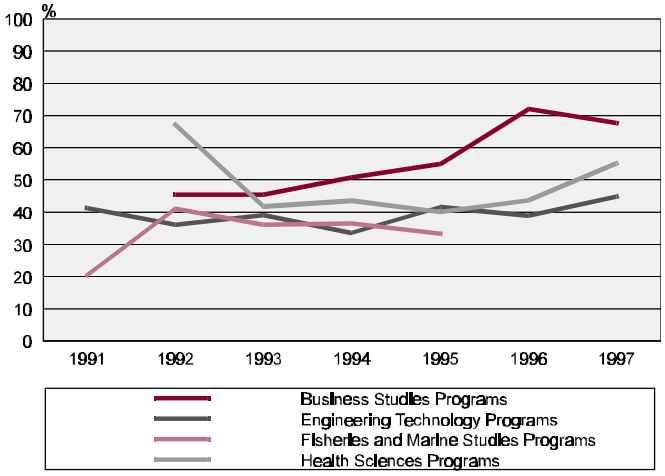
2.8 How do our graduates perform on national professional certification examinations?

Once students graduate from college or university programs many are required to receive national certification before entering a profession. The option for national certification exists in a significant number of professional areas. A measure of the performance of this province's graduates against graduates from other provinces is their achievement on national certification examinations.

Figures 2.8.1 to 2.8.9 provide pass rates for Newfoundland candidates as compared to the Canadian average in examinations for the following professional occupations:

- Certified General Accountant (CGA)
- Chartered Accountant (CA)
- Pharmacist
- Registered Nurse (RN)
- Certified Cytology Technologist
- Medical Radiation Technologist

Figure 2.7.1: Graduation Rate, Three-Year and Four-Year College Programs, Newfoundland, 1991-1997[1]



1. 1991 data not available for Business Studies and Health Sciences Programs.

- Medical Laboratory Technologist
- Respiratory Therapist
- Registered Nursing Assistant (RNA)

As can be seen from the charts pass rates in the accountancy certification examinations varied somewhat across designations. Performance in the CGA examinations (Figure 2.8.1) fluctuated between 51% and 59% and were similar to rates for the Atlantic provinces but slightly below those for the Country. Rates for the CA designations (Figure 2.8.2) were substantially higher in the 70% to 80% range. Newfoundland CA candidates performed markedly higher than the national average routinely outperforming the Canadian rates by 14 or more percentage points.

It should be noted that the requirements for registration into education programs leading to the accountancy designations are considerable. There are variations among the different designations but all require a university degree or a pre-professional program once registered candidates complete a designated program of studies.

Figure 2.8.3 presents pass rates for Pharmacy candidates on the Pharmacy Examining Board of Canada examinations. Virtually all candidates passed the Pharmacy examinations for each of the five years, 1992 to 1996.

Figure 2.8.4 presents pass rates for first-time candidates on the Canadian Nurses Association Registration examination. Pass rates approached 100% for each of the three years 1995/96 to 1997/98. Nationally, pass rates were slightly lower at or above the 90% mark.

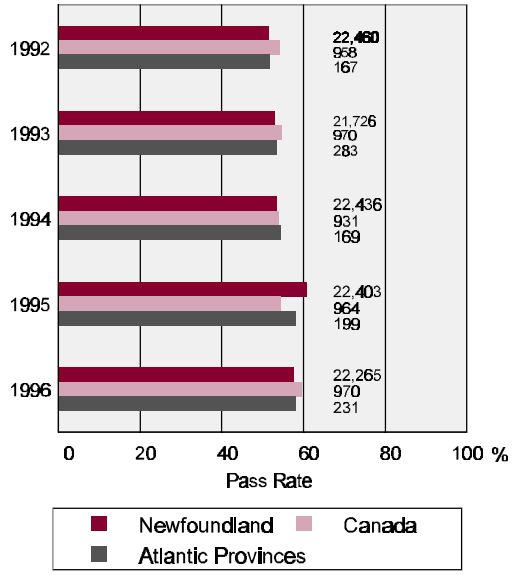
Pass rates on national examinations for the different medical support professions designations are presented in Figure 2.8.5 to 2.8.8. All the Cytology candidates who attempted the examinations passed in each of the years 1993 to 1995 (Figure 2.8.5). Performance on the Medical Radiography examinations (Figure 2.8.6) was less stable with pass rates that fell below the national average for the period 1992 to 1994. However, during the last two years, 1995 and 1996, all candidates attempting certification in this profession were successful. Similar inconsistent performance was seen for the Medical Laboratory Science examination with pass rates that were at national average levels in 1992 and 1993, below average in 1994 and 1995, and 100% in 1996 (Figure 2.8.7). Pass rates for the Respiratory Therapy certifying examinations exceeded the Canadian average each year over the period 1992 to 1996 with all candidates achieving a passing grade in three of the five years (Figure 2.8.8).

Figure 2.8.9 provides pass rates for the Nursing Assistant Licensure examinations for the period 1992 to 1995. Pass rates increased substantially between 1992 and 1995. In that year all 60 candidates were successful in the examination.

In some cases these indicators represent results from very small groups of candidates. When indicators are based on small numbers of cases, caution must be exercised in the interpretation of the data. Nevertheless, recognizing that limitation, it can be said that performance levels in professional certification examinations for most occupations are acceptable, particularly in recent years.

It is clear from the success rates of Newfoundland candidates relative to Canadian performance, as a whole, that generally speaking preparatory programs for these professions in this province have been effective.

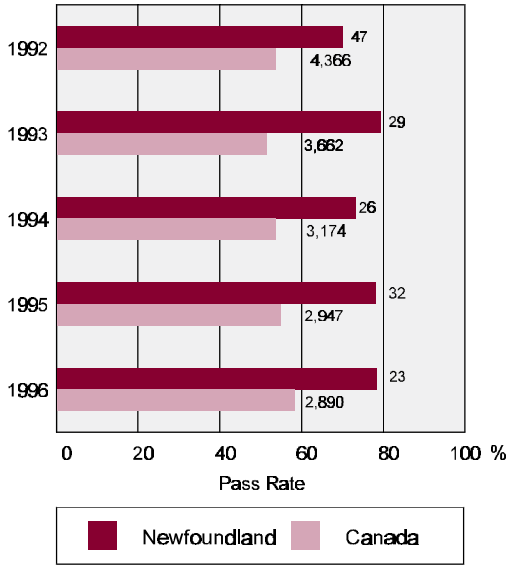
Figure 2.8.1: Pass Rate of Certified General Accountant Candidates on National Examinations, Newfoundland, Canada and Atlantic Provinces, 1992-1996



Source: CGA Association of Newfoundland

Note: Numbers adjacent to bars indicate the number of examinations written.

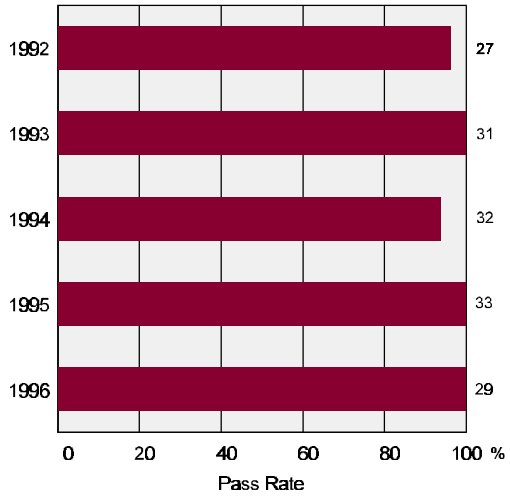
Figure 2.8.2: Pass Rate of Chartered Accountant Candidates on National Examinations, Newfoundland and Canada, 1992-1996



Source: Institute of Chartered Accountants of Newfoundland

Note: Numbers adjacent to bars indicate the number of examinations written.

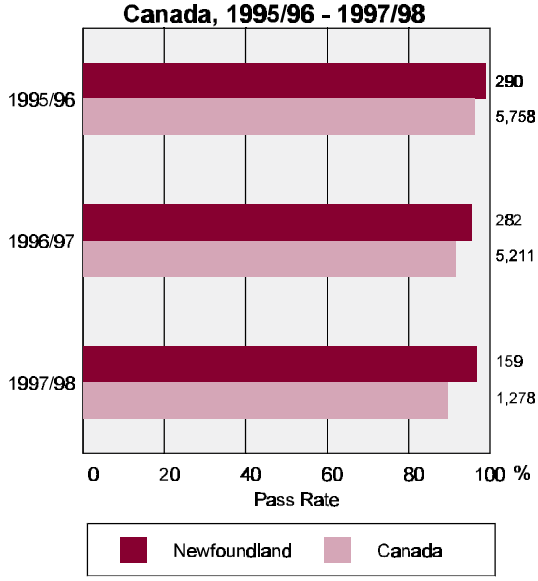
Figure 2.8.3: Pass Rate of Pharmacy Candidates on Pharmacy Examining Board of Canada Examinations, Newfoundland, 1992-1996



Source: School of Pharmacy, Memorial University

Note: Numbers adjacent to bars indicate the number of examinations written.

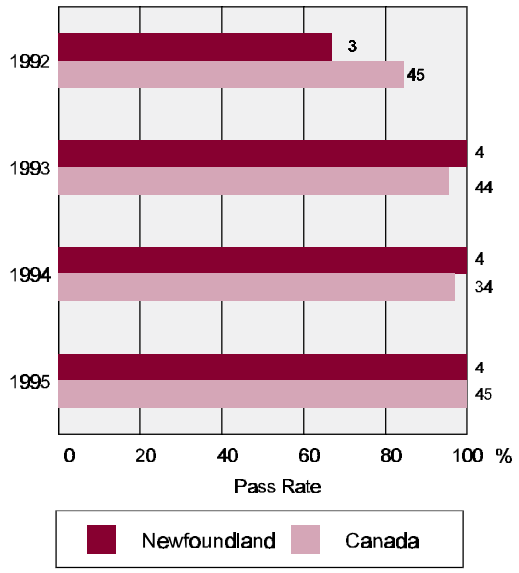
Figure 2.8.4: Pass Rate of First-Time Candidates on Canadian Nurses Association Testing Registration Examination, Newfoundland and Canada, 1995/96 - 1997/98



Source: Association of Registered Nurses of Newfoundland

Notes: 1997/98 results reported from only 2 of 4 scheduled examinations. Numbers adjacent to bars indicate the number of examinations written.

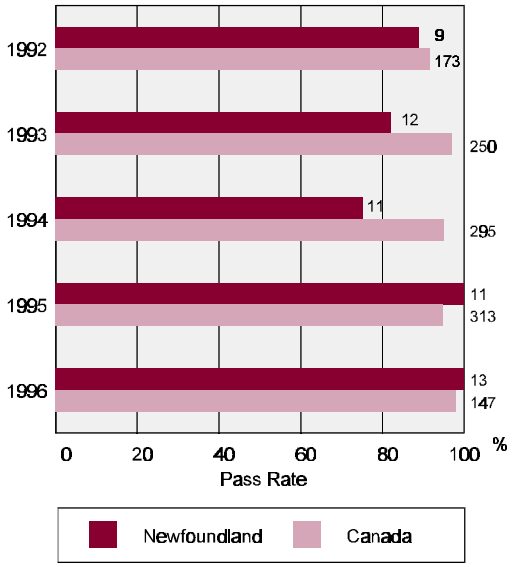
Figure 2.8.5: Pass Rate on National Examinations in Cytology, Newfoundland and Canada, 1992-1996



Source: College of the North Atlantic

Note: Numbers adjacent to bars indicate the number of examinations written.

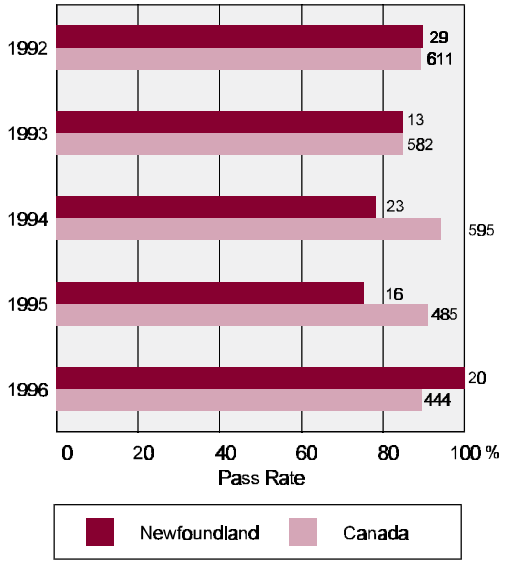
Figure 2.8.6: Pass Rate on National Examinations in Medical Radiography, Newfoundland and Canada, 1992-1996



Source: College of the North Atlantic

Note: Numbers adjacent to bars indicate the number of examinations written.

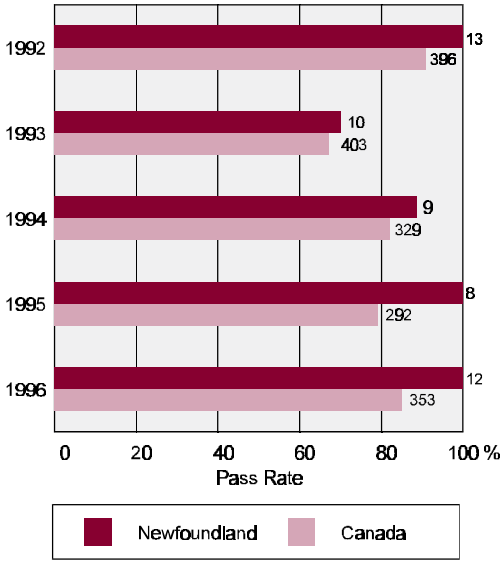
Figure 2.8.7: Pass Rate on National Examinations in Medical Laboratory Sciences, Newfoundland and Canada, 1992-1996



Source: College of the North Atlantic

Note: Numbers adjacent to bars indicate the number of examinations written.

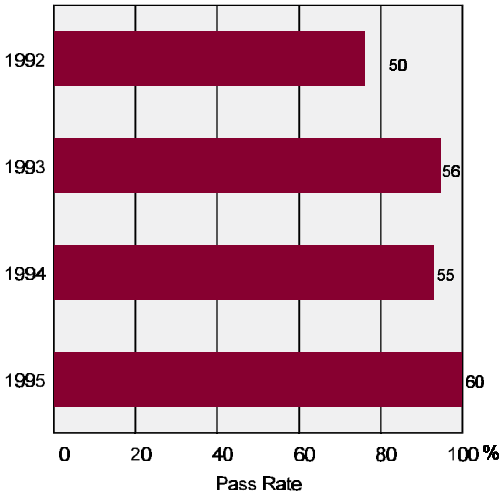
Figure 2.8.8: Pass Rate on National Examinations in Respiratory Therapy, Newfoundland and Canada, 1992-1996



Source: College of the North Atlantic

Note: Numbers adjacent to bars indicate the number of examinations written.

Figure 2.8.9: Pass Rate on Council for Nursing Assistant Licensure Examinations, Newfoundland, 1992-1996



Source: Centre for Nursing Studies, Memorial University

Note: Numbers adjacent to bars indicate the number of examinations written.

2.9 How do our apprentices perform on national apprenticeship examinations?

The nature and conduct of apprenticeship training in Newfoundland has remained consistent over the years. Training is provided in a wide variety of trades including the construction trades - carpentry, bricklaying, plumbing, electrical, sheet metal and others; the automobile maintenance trades including auto body and motor vehicle repair; the mechanical trades of heavy duty repair, industrial mechanic, oil burner and small engine repair; and other general trade groups that include welders, machinists, commercial cooks, hairstylists, heavy equipment operators, linemen, pipefitters and others.

Training related to the academic aspect of trades is provided through the Province's public and private college system. Trainees normally attend one of the college campuses for a period of weeks after which they return to work with their employer. Such training is generally intermittent in that it is arranged in blocks during the terms of apprenticeship. Candidates writing examinations in this category are termed "Completed Apprentices" (CA).

Workers, however, may obtain certification without taking any formal training. Many people in various trades are classified as "Trades Qualifiers" (TQ). Because of documented work experience in a specific trade, they qualify to write the appropriate interprovincial examination. If they succeed in achieving a passing grade, they are awarded the respective Certificate of Qualification. If not, they may upgrade their knowledge by studying on their own and may write the examination at a later time. All tradespersons receive a Certificate of Qualification (Journeyperson Certificate) if successful in their examination.

Interprovincial trade examinations pertain to standard or common journeyperson examinations that are set nationally. Tradespersons who achieve a 70% passing grade are awarded a Red Seal Certificate of Qualification. Prior to 1994, those who had achieved a grade of 60% to 69% were awarded provincial certification recognized only within the Province. Provincial passes for interprovincial examinations were discontinued in 1994.

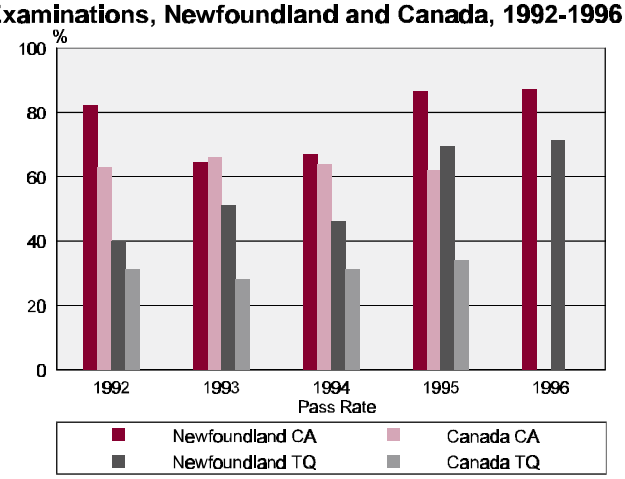
The number of examinations written increased during the late 1980s and peaked in 1991 at 805. Since then, the annual number has decreased slightly. In 1996 there were 759 examinations written.

Completed apprentices show the highest levels of performance both provincially and nationally with pass rates that exceeded those of trades qualifiers by an average of 21 percentage points over the five-year period. Pass rates for Newfoundland Completed Apprentices were substantially higher than the national average in 1992 and very similar to national levels in 1993 and 1994. In 1995, the Newfoundland pass rate was once again higher than the national average, however, comparative national figures for 1996 were not available at the time this report was published.

Pass rates for Newfoundland candidates in the category of trades qualifiers were significantly higher than the Canadian average for all four years for which national figures are available. As was the case for completed apprentices, pass rates for trades qualifiers in 1995 and 1996 increased markedly. For example, the 1994 pass rate of 45.9% increased to 71.4% in 1996.

Among the trades, Red Seal examination pass rates for 1992 to 1996 varied considerably. The success rates over the five-year period were pooled for individual trades and are presented in Figure 2.9.2. The Metal Work and Operations Linesman trades registered the highest success rates over the period at 94% and 80% respectively. About 65% of the candidates for most of the remaining trades achieved a passing grade in the Red Seal examinations. Notable exceptions were the Painting/ Decorating and the Heavy Equipment trades where less than 50% of candidates achieved success.

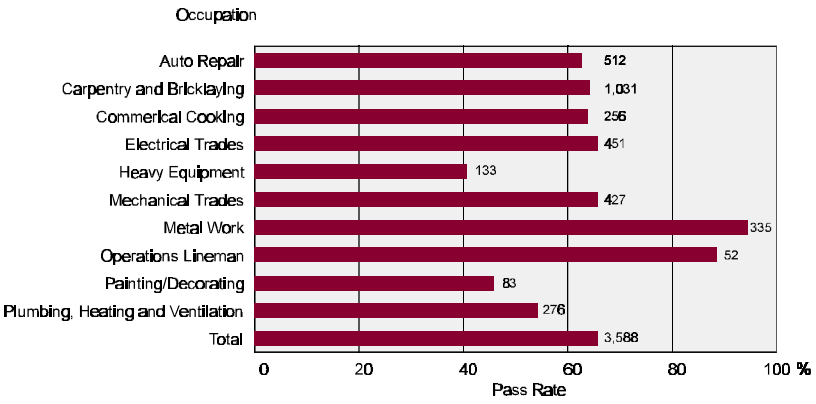
Figure 2.9.1: Pass Rate on Interprovincial Red Seal Examinations, Newfoundland and Canada, 1992-1996



Source: Department of Education and HRDC

Note: 1996 data for Canada not available.

Figure 2.9.2: Pass Rate on Interprovincial Red Seal Examinations by Occupation, Newfoundland, 1992-1996[1]



1. Data pooled for 1992-1996.

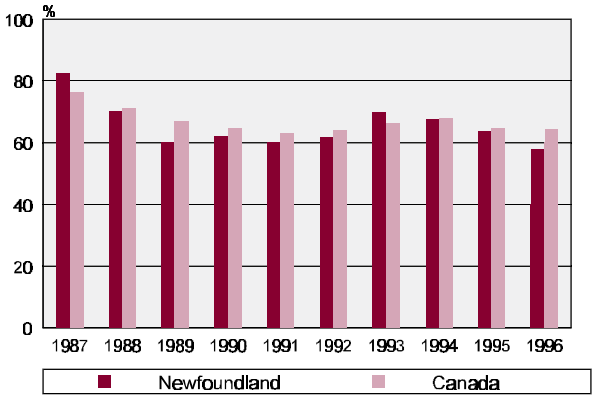
Notes:
1. Numbers adjacent to bars indicate the number of examinations written.
2. Auto Repair - autobody repair and motor vehicle repair; Carpentry and bricklaying - carpentry, joinery, bricklaying and boilermaking; Electrical Trades - electrical construction, industrial electrical and industrial instrumentation; Heavy Equipment - truck and transportation, heavy equipment operator and various crane operators, oil burner mechanic and small engine repair; Mechanical Trades - heavy duty repair, industrial mechanic, oil burner mechanic and small engine repair; Metal Work - welding and machinist work; Operations Lineman - operations lineman and construction lineman; Plumbing, Heating and Ventilation - plumbing, sheet metal, refrigeration/air conditioning and steam fitting/pipe fitting.

2.10: To what extent are high school non-completers receiving high school equivalency through GED?

The tests of General Educational Development (GED) provide adults who did not complete high school with an opportunity to earn a high school equivalency diploma. By taking and passing a series of five tests in writing skills, social studies, science, interpreting literature and the arts, and mathematics, adults demonstrate they have acquired a level of learning that is comparable to that of high school graduates. The program is sponsored by the American Council on Education and certifies the attainment of subject matter knowledge and skills associated with high school completion.

Many who take the GED tests are preparing to enter a public or

Figure 2.10.1: GED Credentials Issued as a Percentage of Examinations Written, Newfoundland and Canada, 1987-1996[1]



Source: Department of Education and GED Testing Service

1. The score requirement for Newfoundland was a minimum 40% in each test and an overall average of 45% on entire battery. From 1987-1990 the score requirement for New Brunswick (French) was at least 35% in each test and 45% in the entire battery. Score requirement for the other provinces was 45% in each test. In 1997 Newfoundland increased its score requirement to 45% in each test.

private college program. Last year, in this country, more than 10,200 adults obtained high school equivalency certificates, about 64% of those tested.

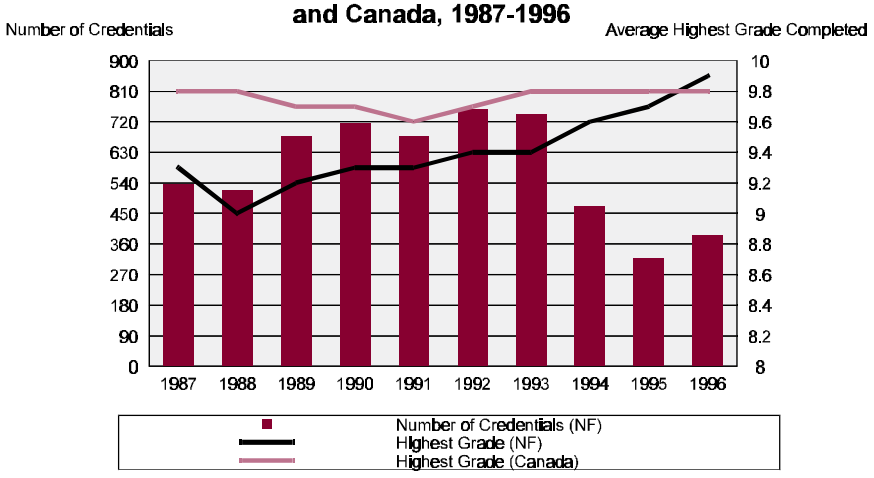
The GED tests have been administered at a number of provincial testing sites since 1974. Figures 2.10.1 to 2.10.3 provide historical and current information on the participation and success of our GED candidates. Figure 2.10.1 shows the percentage of GED candidates receiving a credential as compared to Canada, as a whole over the period 1987 to 1996. Pass rates for both Newfoundland and Canada were generally in the 60% to 70% range with slightly fewer Newfoundland candidates receiving a GED credential than the national averages. On average, the pass rate for Canada over the period was less than one percentage point above the rate for the Province.

For most of this period, however, as can be seen from the information presented in Figure 2.10.2, Newfoundland candidates had completed less formal schooling than had the average Canadian student. The average highest grade completed for Canada was relatively consistent between 9.6 and 9.8 years of schooling. Newfoundland GED candidates in 1988, for example, had completed an average of only 9 years of formal education. The chart shows that over the years GED candidates in this province have acquired more years of K-12 schooling surpassing the Canadian average in 1996. Corresponding to this increase in years of formal education has been a decrease in the number of GED candidates.

The GED became very popular in this province between 1989 and 1993. During those five years more than 3,500 Newfoundlanders achieved a GED credential. Annual numbers have dropped since they peaked at 755 in 1993 to 385 in 1996, the most current year for which data are available. It is probable that the significant increases seen in the high school graduation rate in this province, coupled with lower dropout rates have resulted in fewer GED candidates.

Figure 2.10.3 shows, however, that the average age of GED candidates has been decreasing and, for Newfoundland, is considerably lower than the Canadian average.

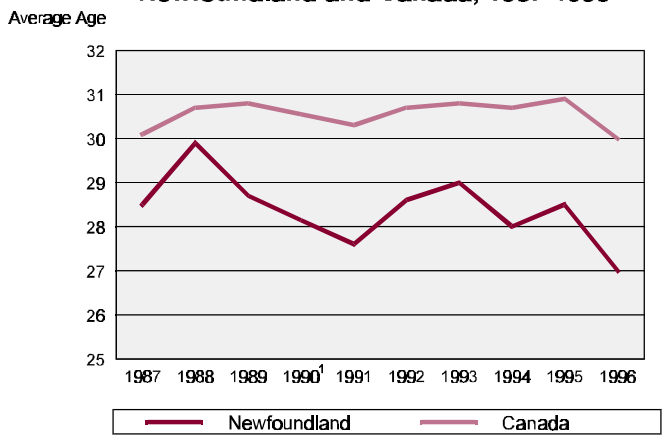
Figure 2.10.2: Number of High School Equivalency Credentials Issued through GED and Average Highest Grade Completed, Newfoundland and Canada, 1987-1996



Source: Department of Education and GED Testing Service

The average GED candidate in Newfoundland is 27 years old compared to the average Canadian age of 30 for Canada as a whole. This difference has always existed but the gap appears to be widening. Reasons why the average Newfoundland GED candidate is so young are probably related to an increase in awareness of the program. A number of agencies have been promoting the use of the GED as a legitimate route to obtaining a high school credential. GED preparatory courses are available and are routinely advertised in the provincial newspapers, and colleges promote the GED as another way for adult learners to meet college entrance requirements.

Figure 2.10.3: Average Age of GED Candidates, Newfoundland and Canada, 1987-1996



Source: Department of Education and GED Testing Service

1. Average age not available for 1990.