

**A Review of Issues
Pertaining to the Apprenticeship System
in Northern Alberta**

Prepared for the
Northern Labour Market Information Clearinghouse

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Chapter 1 **Introduction**

I. Purpose of the Study

The Northern Labour Market Information Clearinghouse Project (the Clearinghouse), under the direction of the Northern Alberta Development Council, is a partnership of four northern colleges: Fairview College (recently combined with NAIT); Keyano College; Lakeland College; and Northern Lakes College).

Each year, the Clearinghouse stakeholders identify a number of priority topics, and arrangements are made for additional research. At this time there is an interest in exploring a number of issues pertaining to the apprenticeship system in northern Alberta. In particular:

- To review completion rates for apprenticeship programs in northern Alberta and ascertain reasons that may contribute to low levels of success, and alternatively factors that contribute to apprentice retention;
- To ascertain the need for pre-apprenticeship programs that focus on essential skills;
- To review the effectiveness and applicability of the current apprenticeship system in Alberta, and to examine alternate methods or systems for the delivery of apprenticeship programs domestically and internationally;
- To explore how the colleges in northern Alberta might contribute to improving inter-provincial mobility of apprentices in Canada;
- To explore how the current negative images of apprenticeships might be alleviated; and
- To review the degree of equity in the tuition fees charged to apprentices.

II. Methodology

The report was completed over the period of March 11 to late April 2003. In so doing, the following steps were taken:

1. Literature from a wide variety of sources was reviewed to ascertain the current status of the above-noted issues and to explore solutions and best practices used by stakeholders other jurisdictions.

2. Meetings and consultations were held with staff at Alberta Learning's Apprenticeship and Industry Training Branch (Apprenticeship Branch) to obtain more recent information, gain insights and to learn of other information sources.
3. The information was analyzed and the report of the findings, conclusions and recommendations was presented to the Manager of the Clearinghouse Project.

Obtaining apprenticeship completion rate data on a regional basis proved to be a problem that delayed completion by March 31. There were a number of complications that are discussed in Chapter 3 - A Review of Apprenticeship Program Completion Rates.

III. Organization of Report

The balance of this report is comprised of the following chapters:

- Chapter 2 – An Overview of Apprenticeship;
- Chapter 3 – A Review of Apprenticeship Program Completion Rates;
- Chapter 4 – An Analysis of Pre-Apprenticeship/Essential Skills Programs;
- Chapter 5 – Alternate Models for Apprenticeship Training;
- Chapter 6 – Apprenticeship/Vocational Training Systems in Other Jurisdictions;
- Chapter 7 - Enhancing Inter-Provincial Mobility of Apprentices;
- Chapter 8 – Enhancing the Image of Apprenticeship Programs; and
- Chapter 9 – Equity of Tuition Fees.

Three appendices provides additional information:

- Appendix 1 - Listing of Designated Trades and Occupations in Alberta
- Appendix 2 – Details of the United Kingdom National Vocational Qualifications System
- Appendix 3 – Northern Alberta Apprentice Numbers and Completion Rates

Report Prelude

This report has attempted to deal with a number of priority northern Alberta issues in a discreet manner (according to the Chapters above) by, in part, examining causes, analyzing existing programs and services, scanning for other best practices and lessons that might be learned from other jurisdictions and, where appropriate, making suggestions for further action by the colleges of the Clearinghouse system.

Readers of the report should be mindful that the area of apprenticeship or Vocational Education Training, as it is sometimes referred to, is extremely complex from both a management structure

and an issues perspective. In Canada alone, 13 separate provincial and territorial systems need to be coordinated, and the issues addressed in the individual Chapters are, in many instances, highly interrelated. For example, there is overlap between issues of perception, completion rates and enhancing mobility, according to the form of training provided. Sight of this overlap and interconnection should not be lost in reading the report. Furthermore, the apprenticeship area is in receipt of very high priority attention as nations, provinces and states attempt to come to grips with changing demographics, skilled worker shortages, as well as cost and global competitive pressures. While the writer is hopeful that a relatively balanced and complete perspective has been presented, it has been a challenge to review the vast quantity of literature within relatively tight time-lines and there is a risk that information, models or studies that would be of benefit have been overlooked. The report might best be viewed as a starting point for further action.

Chapter 2 An Overview of Apprenticeship

The principal focus of this chapter is to provide the reader with an overview of apprenticeship in Alberta and Canada. This foundation will be particularly helpful when considering issues and topics discussed in subsequent chapters.

I. A Brief Canadian Perspective

According to the Canadian Constitution, apprenticeship training is a provincial and territorial responsibility. This “reality” has led to over 200 different training programs in 13 separate controlling jurisdictions, each with different legislation and regulations and, in some cases, differing trades and occupations, standards and training programs, and vested interests according to the needs of the province or territory. There are a great number of unions, and trade associations, with some being local, provincial and national. The following tables provide an overview of many of the major apprenticeship related organizations in Canada.

Provincial/Territorial Governments	
Nunavut Adult Learning and Post Secondary Services Department of Education Government of Nunavut www.gov.nu.ca/education.htm	Yukon Advanced Education Branch Department of Education Government of the Yukon Territory http://education.gov.yk.ca/advanceded/apprenticeship
Alberta Apprenticeship and Industry Training www.tradesecrets.org	British Columbia Industry Training and Apprenticeship Commission www.itac.gov.bc.ca
Northwest Territories Department of Education Culture and Employment Programs Government of the Northwest Territories www.learnnet.nt.ca	Saskatchewan Apprenticeship and Trade Certification Commission www.sasknetwork.gov.sk.ca
Manitoba Manitoba Education, Training and Youth Apprenticeship Branch www.edu.gov.mb.ca/apprenticeship	Ontario Workplace Support Services Branch Ministry of Training, Colleges and Universities www.edu.gov.on.ca/eng/training/apprenticeship/appren.html
Québec Emploi-Québec http://www.mess.gouv.qc.ca/anglais/outils/quest2.htm	New Brunswick Apprenticeship and Occupational Certification New Brunswick Department of Training and Employment Development www.gnb.ca/ted-fde/apprenticeship/index.htm
Prince Edward Island Department of Education www2.gov.pe.ca/educ/continuing/apprenticeship	Newfoundland and Labrador Department of Youth Services and Post-Secondary Education www.gov.nf.ca/edu
Nova Scotia Apprenticeship Training Division Nova Scotia Department of Education www.apprenticeship.ednet.ns.ca http://apprenticeboard.ednet.ns.ca	

Other Links	
Aboriginal Human Resource Development Council of Canada www.ahrdcc.com	Human Resources Development Canada (HRDC) www.hrdc-drhc.gc.ca
Canadian Automotive Repair and Service (CARS) Council www.cars-council.ca	Skills/Compétences Canada www.skillscanada.com
Canadian Council of Directors of Apprenticeship www.red-seal.ca	Yukon WorkinfoNET www.yuwin.ca/english/index.cfm
Canadian Labour Congress www.clc-ctc.ca	Association of Canadian Community Colleges www.accc.ca
Ellis Chart - Comparative Chart of Apprentice Training Programs www.ellischart.ca	Canadian Construction Association www.cca-acc.com
Canadian Home Builders' Association www.chba.ca	Canadian Manufacturers & Exporters www.cme-mec.ca
Halton Industry Education Council www.apprenticesearch.com	Industry-Education Council of Hamilton www.skilledtrades.ca
Women in Trades and Technology National Network (WITT NN) www.wittnn.com	

According to Statistics Canada (The Daily, August 14, 2002), in 2000, the latest year for which statistics are available, the number of people registered in apprenticeship training programs nation-wide in Canada increased to 201,586, up almost 7% from 1999 and surpassing the previous peak in registrations in 1991. In addition, in 1998/99, 240,133 students were enrolled in trade/vocational and preparatory training programs in community colleges, as well as in CEGEPs and high schools in Quebec, down 4% from 1997/98.

The Interprovincial Standards "Red Seal" Program, implemented in 1958, (and addressed at greater length in subsequent chapters) provides mobility for certified journeypersons in Canada. The Canadian Council of Directors of Apprenticeship (CCDA) administers the Red Seal Program and other intergovernmental initiatives. The CCDA is an inter-jurisdictional partnership that works with industry in the development of a skilled labour force, and in the facilitation of labour mobility throughout Canada.

The Canadian Apprenticeship Forum (CAF) brings together key participants at the national level to promote apprenticeship as an effective training and education system that contributes to the development of a skilled workforce, and provide a mechanism for the key stakeholders to support the apprenticeship delivery systems across Canada. CAF is a partnership of business, labour, the Interprovincial Alliance of Apprenticeship Board Chairs, education, equity groups, the CCDA, and HRDC.

II. Overview of Alberta’s Apprenticeship System

A. The Basics of Apprenticeship

Alberta’s approximately 40,000 apprentices learn through a combination of on-the-job training and technical/“classroom” training that is currently approximately 80% and 20% of an apprentice’s time, respectively. Apprenticeships can take anywhere from one to four years to complete, depending on the trade. A graduate apprentice goes by the title of “certified journeyman.”

In Alberta, The Apprenticeship and Industry Training Act (the Act) and regulations provide the legislative authority for Alberta Learning to govern the apprenticeship program through the Apprenticeship and Industry Training Board.

The apprenticeship system is an industry-driven partnership that produces highly skilled, internationally competitive workers in over 50 “designated trades” and a smaller number of “designated occupations”. The process of designating a trade or occupation is discussed briefly later.

While government supports Alberta’s apprenticeship and industry training system, it is driven by industry, a term that includes both employers and employees. The province’s training and certification is designed to meet the evolving requirements of each designated trade or occupation, and maintain high industry standards.

The Act (above) requires that the government appoint an Alberta Apprenticeship and Industry Training Board. The Board’s main function is to advise the Minister of Learning on labour market matters that relate to the training and the certification of people in designated trades and designated occupations. In advising the Minister, the board draws upon the expertise of various committees.

Each trade has a provincial apprenticeship committee (PAC). The PACs are responsible for setting the training needs and standards in their respective trades including content for their trade, recommending the standards for training and certification for their trade, and forward their recommendations to the Board. They are also responsible for deciding whether training provided by people or organizations other than the minister is equivalent to training provided in an apprenticeship program in their trade.

Most of the trades in Alberta have a network of local apprenticeship committees (LACs). The board sets up LACs in any area of the province where there is enough interest to so warrant. LAC responsibilities include making recommendations about apprenticeship and certification to the PAC for their trade.

A brief summary of the relative responsibilities of the principal players is presented below.

1. Candidates

Candidates are required to:

- Provide proof of the necessary educational qualifications to enter the trade including, in some cases, obtaining a passing grade on an entrance exam;
- Obtain a suitable employer who will act as a sponsor; and
- Enroll as a “registered” candidate in an apprenticeship program.

To progress from one period of training to the next, an apprentice must:

- Successfully complete the formal instruction, typically from three to 12 weeks per year;
- Have the required hours of on-the-job training and a satisfactory report from the supervisor; and
- Pass the apprenticeship examination for that period of training (70% pass mark).

After completing these steps, an apprentice’s wages should increase to the next level for that trade.

2. Employers

Employers who hire an apprentice agree to:

- Provide on-the-job training for the apprentice;
- Provide a journeyman to train the apprentice;
- Pay the apprentice’s wages;
- Allow the apprentice time to attend the required technical training; and
- Update the apprentice’s record book.

3. Alberta Learning’s Apprenticeship Branch

Alberta Learning’s Apprenticeship Branch employees arrange the formal in-school instruction for all apprenticeship programs. They also cover the cost of the administration of the apprenticeship system, including the full range of client services directly delivered by the Apprenticeship Branch of Alberta Learning. Ministry staff provide a range of services to clients, including: registering apprentices, scheduling apprentices to attend classroom training; assessing and counseling employers and apprentices; monitoring training; outreach; administering examinations for qualification; issuing certificates; working with industry to develop training programs, occupational standards, curriculum and exams and working with the Federal government and other provinces and territories to develop the interprovincial Red Seal program.

4. Training Establishments

Training establishments, mostly colleges and technical institutes, teach to the training standards set by the PACs.

B. Structure and Control of the System

1. External and Internal Review

The apprenticeship program in Alberta operates on a three-year business cycle that includes program evaluation of the in-school portion of apprenticeship training through performance indicators such as student and graduate satisfaction surveys and graduate employment rates. Training institutions are required to teach to the training objectives as defined by the PAC in each respective trade.

2. Major Components

Red Seal Program

As noted above, an Interprovincial Standards "Red Seal" Program promotes and facilitates the standardization of provincial and territorial apprenticeship training, as well as the regular updating of national trades standards in order to reflect the ongoing technological changes taking place in all trades. Canada's provinces and territories developed the Red Seal program in cooperation with the federal government (Human Resources Development Canada) to standardize trade skill requirements and provide greater employment mobility throughout Canada. A provincial Certificate of Trades Qualification bearing the Red Seal provides training recognition in most jurisdictions throughout Canada. For employers in other jurisdictions, the Red Seal is an assurance of quality training and certification to nationally recognized standards.

Blue Seal Program

A "Blue Seal" program, or "Achievement in Business Competencies" helps to ensure that apprentices have the necessary skills to succeed in business. Candidates who have met the requirements of the program receive a "blue seal" for their certificate. In some instances, blue seal holders can apply toward credit or advance standing for business certificates or diplomas.

Registered Apprentice Program

The Registered Apprentice Program (RAP) is an agreement among students, employers, and schools to facilitate a flexible arrangement for high school students to complete the early stages of apprenticeship programs. A student's hours of work depend on the agreement, but could involve:

- Working as a RAP apprentice for one semester, and going to school the next;
- Working half a day, and going to school the other half;
- Working during the summer, on holidays and weekends, and attending school during the regular term; and/or
- Working one or two days a week, going to school the other days.

Over 1,100 high school students are currently registered in a Registered Apprenticeship Program (RAP), and 1,300 apprentices who started in RAP are currently into regular apprenticeship following high school graduation.

3. Designated Trades and Occupations

In Alberta, there are over 50 designated trades and, at most recent count, five designated occupations. A more comprehensive listing of the trades and occupations is found in Appendix 1.

Designated Trades

A designated trade:

- Has been approved by the Minister of Learning on the recommendation of the industry and the Alberta Apprenticeship and Industry Training Board, and
- Is regulated by Alberta's Apprenticeship and Industry Training Act and associated regulations

Each designated trade has industry-established job skills and competencies and a training program referred to as an apprenticeship program. To work in a designated trade in Alberta, a person must be a registered apprentice or a certified journeyman or, in some trades, work for an employer who is satisfied that the worker has the skills and knowledge expected of a certified journeyman, or be self-employed. If a person desires to work in any designated trade in Alberta but needs to learn the trade, the person must be a registered apprentice.

Designated Occupations

A designated occupation:

- Has been approved by the Minister of Learning on the recommendation of the industry and the Alberta Apprenticeship and Industry Training Board, and
- Is designated under Alberta's *Apprenticeship and Industry Training Act* and associated regulations

Designated occupations have clearly identified competencies. When an individual demonstrates they have achieved the occupation's identified competencies, the Minister grants an occupational

certificate. Participation in a designated occupation is voluntary in Alberta. An Occupational Certificate is not required for an individual to work in the occupation.

The Designation Process

The process to designate a trade or occupation usually starts when an industry submits an application to the Minister of Learning. Industry, represented by a Provisional Committee, and the Apprenticeship and Industry Board define the standards for training and certification that will be required for the trade or occupation. Based on recommendations of industry and the Board, the Minister and Cabinet approve the standards and regulations for the designated trade or occupation. Cabinet, with the approval of the Lieutenant Governor in Council, designates the trade or occupation.

C. Aboriginal Apprenticeship

The Alberta Aboriginal Apprenticeship Project (AAAP) was established in 2001 to promote apprenticeship and industry training to Aboriginal people, communities, and organizations in Alberta.

The project is designed to help Aboriginal people enter and complete apprenticeship programs. Its goal is to register a minimum of 180 Aboriginal apprentices by 2006. Project sponsors include Aboriginal groups, industry, educational jurisdictions, and federal and provincial governments. The project is expected to provide a valuable template for Aboriginal groups and other organizations across Canada to undertake similar labour market projects.

The Alberta Aboriginal Apprenticeship Project currently operates in three Alberta communities:

- **Edmonton** - where demand for skilled construction labour, in particular, is high;
- **Fort McMurray** - as a result of oilsands development; and
- **High Level** - as a result of the demands of the forestry, energy and construction industries.

In each of these communities a Project Officer works with Aboriginal people, communities, and organizations to build support for the Alberta apprenticeship training system, to screen candidates rigorously and to match them with companies.

D. Training Institutes

The approximately 20% of an apprentice's training that occurs "in the classroom" takes place at a variety of institutes in Alberta, and to a very small extent, where numbers do not warrant a program in Alberta, in British Columbia. In 2002, over 1,000 technical training classes were

provided. Overall, the number of students actually receiving training increased from approximately 14,000 in 1997/98 to an expected approximately 18,000 in 2001/02.

The proportion of the total trained at facilities in northern Alberta, or approximately the N.A.D.C. region, ranged from 1,571 in 1997/98 to 1,974 in 2001/02 or approximately 10% of the total.

The institutes providing the largest portion of training in the province are N.A.I.T. and S.A.I.T. Training at accredited work sites, in the case of ATCO and Utilcorp, is still relatively insignificant, as is training occurring in British Columbia, as in the case of tilesetters and programs offered at the British Columbia Institute of Technology (B.C.I.T.) It should be noted that provision is not made for technical training for all trades each year. That is to say that the Apprenticeship Branch of Alberta Learning designates a number of “seats” for training each year, according to the priorities of stakeholders and the capacity of the system.

The following table provides an overview of the numbers of apprentices trained by institute over the period 1997/98 to 2001/02.

Apprenticeship Training by Institution

Institution	1997/98	1998/99	1999/2000	2000/01	2001/02 *
Northern Alberta					
Fairview	665	710	671	667	770
Keyano	391	406	396	394	475
Lakeland	509	610	542	584	675
Grande Cache Inst	6	0	0	1	7
Portage	0	0	0	0	47
Sub-total	1,571	1,726	1,609	1,646	1,974
Balance of Province					
Lethbridge	506	503	590	625	689
Marvel ¹	54	57	54	73	87
Delmar ¹	78	65	89	93	125
Medicine Hat	255	271	249	270	297
NAIT	6,278	6,785	6,974	7,114	8,010
Olds	254	226	220	200	203
Red Deer	1,020	1,164	1,322	1,450	1,690
SAIT	4,042	4,329	4,447	4,706	5,090
ATCO	0	0	0	5	14
PITS	0	0	2	80	40
Utilcorp	3	14	0	0	9
Sub-total	12,490	13,414	13,947	14,616	16,254
British Columbia					
BCIT	32	27	22	20	16
Tilesetter JCB ²	2	6	2	5	1
Sub-total	34	33	24	25	17
Total	14,095	15,173	15,580	16,287	18,245

Notes:

- * Projected number of students.
- 1. Hairdressing schools (two year apprenticeship programs).
- 2. Tile setters in Alberta have the option of attending BCIT when numbers in Alberta do not warrant a program.

E. Most and Least Common Apprenticeships in Alberta

System-wide in 2001/02, over 12,000 new apprentices registered, resulting in a new apprenticeship registration seven-year average of 10,500. Based upon data presented in the 2001/02 Annual Report of the Alberta Apprenticeship and Industry Training Board, for the year 2001 the ten most common apprenticeship programs, comprising over 27,000 apprentices or approximately 67% of the total of about 40,000 were: 1) electrical; 2) welder; 3) carpenter; 4) Heavy Equipment Technician; 5) Automotive Service Technician; 6) Plumber; 7) Hair Stylist; 8) Steam Fitter (Pipe Fitter); 9) Instrument Technician; and 10) Millwright.

By comparison, the five least common apprentices, with total numbers less than 250, were: 1) Sawfiler; 2) Water Well Driller; 3) Transport Refrigeration Technician; 4) Floor Covering Installer; and 5) Electrical Motor Systems Technician.

For each of the preceding, the table below provides an overview of: 1) the numbers of apprentices registered in 2001; 2) the number of new apprentices; 3) the number of apprentices certified in the year; 4) the number of apprentices enrolled in the program in the years 1996, 1997, 1998, 1999 and 2000; 5) an average enrolment over the years 1996 to 2000; and 6) the change in enrolment from 1996 to 2000. A breakdown of these numbers for northern Alberta is extremely difficult at present due to the way that data is collected. Please reference Chapter 3 for further details.

Most and Least Common Apprenticeships

Trade	2001	New	Certified	# Of Appr entic es					Average	Change
Top 10				1996	1997	1998	1999	2000		
Electrician	5947	1899	524	2823	3248	3925	4108	5000	4175	111%
Welder	5421	2293	810	2953	3740	4644	4513	4359	4272	84%
Carpenter	2720	916	191	1742	1869	2212	2218	2447	2201	56%
Heavy Equipment Technician	2597	851	451	1938	2250	2564	2554	2442	2391	34%
Automotive Technician	2392	766	313	2050	2179	2334	2368	2278	2267	17%
Plumber	2168	686	150	1077	1216	1413	1710	1893	1586	101%
Hair Stylist	1776	806	408	1452	1385	1389	1358	1491	1776	22%
Steam Fitter	1711	662	100	774	866	1087	1200	1359	1189	121%
Instrument Technician	1401	559	109	898	893	965	1012	1049	1036	56%
Millwright	1365	484	200	957	1090	1208	1241	1203	1177	43%
Sub-Total	27498	9922	3256	16664	18736	21741	22282	23521	22070	65%
Bottom 5										
Sawfiler	23	3	7	42	38	31	25	28	31	(45)%
Water Well Driller	35	19	8	44	39	35	24	30	35	(20)%
Transport Refrig'n Technician	47	18	6	31	40	41	46	41	41	52%
Floor Covering Installer	53	21	4	67	61	58	55	51	58	(21)%
Electrical Motor Technician	51	18	7	52	55	56	55	46	53	(2)%
Subtotal	209	79	32	236	233	221	205	196	218	(7)%
Balance	10383	3993	1073	7894	8072	8354	8652	8830	8359	31%
Total	38090	13994	4361	24746	27041	30316	31139	32547	30647	54%

The Board's Annual Report can be referenced for a full listing of all programs.

F. Number of Apprentices Certified

In the year 2001, a total of close to 6,700 apprentices were certified. Of these 3,256 were certified according to Alberta requirements and another 2,828 received red seal qualifications. A break down by trade, as well as other types of qualification, is presented in more detail in the discussion in Chapter 3.

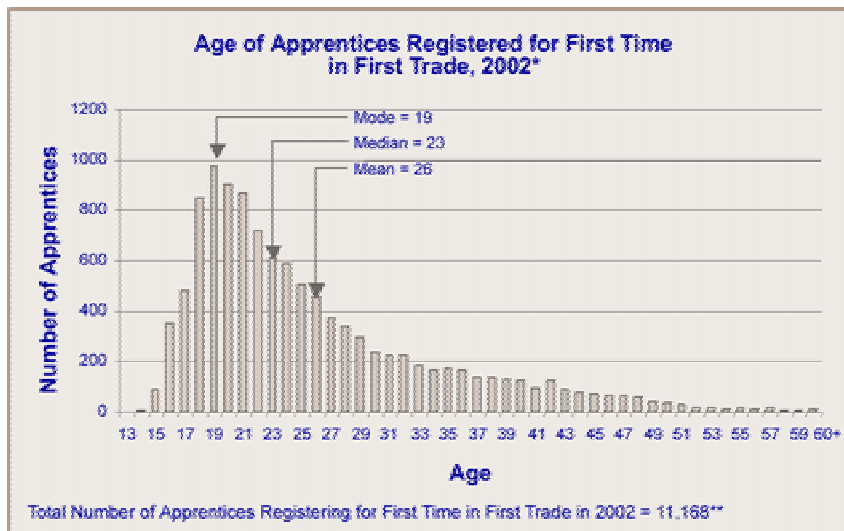
G. Some Additional Select Statistics and Characteristics

Alberta has apprenticeship offices in the following communities

- *Within or close to NADC boundaries* – Bonnyville, Fort McMurray, Grande Prairie, Hinton, Peace River, Slave Lake, and Vermillion.
- *For the balance of the province* – Calgary, Edmonton, Lethbridge, Medicine Hat, and Red Deer.

As presented in the following graphic, the most common age of Alberta apprentices registered for the first time in their first trade is 19 and the “age at registration” of apprentices ranges from a low of 13 to a high of in excess of 60.

Age at Entering Apprenticeship for the First Time



Source: Apprenticeship 2001-2002 Annual Report

The following statistics and commentary, derived from discussions with staff, provide some additional sense of the scope and characteristics of Alberta's apprenticeship system. For the 2002 year:

- 45% of apprentices are trained in firms with 10 or fewer trades people; and 14% in firms with over 100 trades people;
- Over 13,000 visits to employers were completed;
- Alberta trains approximately 20% of Canada's apprentices, yet Alberta has only 10% of Canada's population; and
- Alberta produces more journeymen with a Red Seal than any other jurisdiction in Canada.

Chapter 3 **A Review of Apprenticeship Program Completion Rates**

This chapter attempts to provide an analysis of completion rates for apprenticeship programs for northern Alberta. It is noted that problems associated with the availability of certain key information and, in some cases, differences in methods of reporting (both discussed in greater detail throughout) have presented challenges to addressing some of the associated issues.

I. A National Overview

A brief overview of the national situation may help to place the Alberta discussion that starts in Section II into perspective. Unfortunately, consistent data (from a single year) was not available, making it necessary to use “snap shots” from several different years. However, the information is useful in obtaining a broad perspective.

A. Registered Apprenticeship Training

1. Numbers of Apprentices

As noted in Chapter 1, based upon Statistics Canada data ¹, the number of people registered in apprenticeship training programs nation-wide in 2000 in Canada increased to 201,586, up almost 7% from 1999 and surpassing the previous peak in registrations in 1991. By comparison, there were approximately 32,000 apprentices in Alberta in 2000, as presented in Chapter 2 (although the number for the latest year is approaching 40,000).

The following table provides an overview of apprenticeship training nation-wide and shows the changes in registrations for the major groupings of apprentices.

Canadian Apprenticeship Registrations and Changes by Major Trade Group

Major trade groups	Registrations and % Changes				
	1991	1999	2000	1991 to 2000	1999 to 2000
Building construction	46,925	38,166	40,934	-12.8%	7.3%
Electrical, electronics and related	37,035	30,753	32,853	-11.3%	6.8%
Food and service	11,422	18,819	20,070	75.7%	6.6%
Industrial and mechanical	15,111	15,753	16,306	7.9%	3.5%
Metal fabricating	39,535	40,681	44,420	12.4%	9.2%
Motor vehicle and heavy equipment	39,316	39,993	41,991	6.8%	5.0%
Other	3,602	4,611	5,012	39.1%	8.7%
Total	192,946	188,776	201,586	4.5%	6.8%

¹ www.statcan.ca/Daily/English/020814/d020814c.htm

By comparison, (while 1991 figures are not readily available), Alberta's growth in registered apprentices has increased by over 31% in the period 1996 to 2000, as summarized in the following table.

Year/Category	1996	1999	2000
Top 10	16,664	22,282	23,521
Balance	8,082	8,857	9,026
Total	24,746	31,139	32,547

The "Top 10" trades, which are highly related to construction and accounted for over 67% of totals, were presented in greater detail in Chapter 2.

2. Trends in Registrations

Registrations have, in general, been increasing since 1996, following a period of decline from 1991 associated with a weak economy. Although still not a large trade group, the fastest growing sector nation-wide has been food and services trades, in which registrations have almost doubled since 1991. In 2000, the largest of the trade groups, metal fabricating, showed the greatest annual increase, up more than 9%. The number of registrations in the construction trades and electrical, electronics and related trades fell in the early 1990s and have not returned to previous levels. By comparison, Alberta's trades with the largest increases (in excess of 100% between 1996 and 2001) were: Steamfitters (121%); Electricians (111%); and Plumbers (101%). These three trades are also among the largest in Alberta.

B. Apprenticeship Program Completions

Although enrolments reached an all-time high of over 200,000 in 2000, as noted above, the number of completions (18,254) remained 8% below the 1991 level. Over the period 1991 to 2000, completions declined in most trade groups. The Building Construction and Food Service trades experienced the largest declines (42% and 40% respectively). These trades experienced strong improvement in 2000, and sectors such as motor vehicle and heavy mechanical experienced an actual increase in completion rates. However, the industrial and mechanical sector continued to deteriorate with a decline worsening from 15% to approximately 25%.

The following table provides an overview of nation-wide completion rates, broken down by major sectors, for the years 1991, 1999 and 2000 and makes comparisons of changes between 1991 and 2000, and 1999 and 2000.

Completions by Major Trade Groups

Major trade groups	Completions and % Changes				
	1991	1999	2000	1991 to 2000	1999 to 2000
Building construction	3,602	2,224	2,076	-42.4%	-6.7%
Electrical, electronics and related	3,393	2,763	2,739	-19.3%	-0.9%
Food and service	1,841	2,562	2,580	40.1%	0.7%
Industrial and mechanical	1,941	2,188	1,624	-16.3%	-25.8%
Metal fabricating	3,779	4,225	4,186	10.8%	-0.9%
Motor vehicle and heavy equipment	4,747	4,248	4,728	-0.4%	11.3%
Other	421	372	321	-23.8%	-13.7%
Total	19,724	18,582	18,254	-7.5%	-1.8%

By comparison, in 2000, over 6,700 Alberta apprentices were certified (used as a surrogate of completions), as detailed in the following table.

Total Number of Individuals Certified in 2001 By Type of Certification

Trade/ Occupation	Journeyman Certificates Issued to Completed Apprentices and Trainees	Interprovincial Red Seals Issued to Completed Apprentices	Qualification Certificates	Interprovincial Red Seals Issued to Certified Journeymen	Equivalency Documents	Total
Electrician	524	441	43	51	17	1,076
Welder	810	783	45	62	22	1,722
Carpenter	191	147	2	2	1	343
Heavy Equipment Technician	451	379	39	40	16	925
Automotive Service Technician	313	291	33	34	14	685
Plumber	150	141	1	8	8	308
Hair Stylist	408	274	13	38	25	758
Steam Fitter	100	94	15	22	8	239
Instrument Technician	109	86	1	1	0	197
Millwright	200	192	21	24	5	442
Total	3,256	2,828	213	282	116	6,695

Source: Apprenticeship 2001-2002 Annual Report

II. The Situation in Northern Alberta

As part of this assignment, Clearinghouse stakeholders expressed a view that there is currently a low completion rate in northern Alberta and an interest in the following factors:

- What is the recent apprenticeship completion rate in regions of northern Alberta?
- Why do apprentices not complete programs?
- What factors contribute to apprentice retention?

Addressing the above-noted issues in a fully satisfactory manner at this time proved to be extremely challenging for several reasons.

1. The Apprenticeship Branch of Alberta Learning does not, at present, monitor such data on a regional basis. Data is tracked only at the provincial level. To address the needs of the Clearinghouse stakeholders, it was necessary to retrieve much of the data (and only that which was of the highest priority) in a time consuming manual manner. Overlapping college, government and calendar years complicate matters further.
2. An “Apprenticeship Cancellation Study”, currently being conducted, and which would address many of the issues of interest to Clearinghouse stakeholders, will not be completed until later in the 2003/04 year.
3. The number of apprentices in certain trades in northern Alberta is very small and making conclusions on the statistics, or comparisons with, say Statistics Canada data, can be misleading. With small sizes of less than 30 cases, the rates are subject to a wide variability that is due entirely to the small numbers involved. In addition, the system used by the Apprenticeship Branch has difficulty tracking and monitoring the location of apprentices. An apprentice’s office of registration does not necessarily represent the apprentice’s work location or residence.
4. The monitoring and calculation methods used by the Apprenticeship Branch do not always lend themselves well to the needs of the Clearinghouse stakeholders. **Only individuals who have successfully completed their first period of training, and those who received credit for their first year are included in the completion rate calculations.** Consequently, those who “fail” the first year, and are likely of most interest to the Clearinghouse, are no longer in the “system”. “Successful” individuals are then tracked as they progress through the system up to 2 years beyond the normal length of the program. Only trade programs of 2 years to 4 years are included. Apprentices in different length programs are tracked at different times in order to have a common graduation date. For example, for graduates of the period July 1, 1996 to June 30, 1997, apprentices who completed a 4-year program would have had to start their programs in 1991/92. Apprentices in 3-year programs would have started in 1992/93 and those in 2-year programs would have started in 1993/94. Two rates are provided, one being the “On Time” completion rate and a “2-years After” the expected completion (which was determined to be a reasonable period of time in which to complete). The Apprenticeship Branch reports the latter rate for the total of all trades in its Annual Report.

5. The reasons for not completing an apprenticeship program go beyond those related to the academics likely of most interest to the Clearinghouse stakeholders and also include financial/economic and personal reasons. All need to be accounted for to gain a complete understanding.

Keeping the aforementioned caveats and limitations in mind, it is possible to provide some discussion of the issues of interest to the Clearinghouse stakeholders.

A. Completion Rates

1. **There is great diversity in the difference in completion rates between the trades that were considered to have sufficient numbers of apprentices in northern Alberta to warrant comparisons (nine in total, but not in each year).**

If the "On Time" measure is used, the completion rates range from a low of approximately 26% for Carpenters in North East Alberta in 1996/97 to a high of over 90% for Welders in North West Alberta for the same year.

As a possible explanation for the low Carpenter figure, according to Apprenticeship Branch staff, scaffolders, who are dispatched from the carpenter's union hall to the major construction projects around the north, must be registered apprentices to be on the books. Accordingly, many simply register as apprentices in order to qualify, with no intention of pursuing a carpenter apprenticeship. Steps have been taken to mitigate the problem. Another factor may be the number of Aboriginal apprentices who register in the carpenter trade as employees of a band's housing authority, and subsequently struggle to handle the technical training side of their apprenticeship.

2. **While the northern numbers are relatively small in comparison with the provincial totals (approximately 16%), using more current (and to some extent more meaningful because of larger numbers involved) 2001/02 data, several observations can be made.**

Northern Alberta completion rates are comparable or superior for the following trades:

- Electricians
- Welders
- Carpenters
- Heavy Equipment Technicians

Northern Alberta completion rates are weaker for the following trades:

- Parts Technicians
- Millwrights
- Steamfitters and Gasfitters
- Auto Service Technicians

The following table provides a summary, at three points in time (1991/92, 1996/97 and 2001/02), of the number of apprentices that were enrolled in apprenticeship programs and the associated completion rates on an “On Time” and “2 Years After” basis. The table breaks the data into North West (NW) and North East (NE) and also provides comparable data on an Alberta-wide basis.

Comparison of Apprentice Numbers and Completion Rates for Major Trades in Northern Alberta (1991/92, 1996/97 and 2001/02)

Trade	Region	1991/92			1996/97			2001/02		
		Number	Compl	Rate ³	Number	Compl	Rate ³	Number	Compl	Rate ³
			On time	2 Yrs After		On time	2 Yrs After		On time	2 Yrs After
Welder	NW	19	73.7%	73.7%	21	90.5%	100.0%	38	71.1%	86.8%
(3 years)	NE	25	64.0%	96.0%	15	80.0%	100.0%	64	64.1%	78.1%
	Alberta	265	73.2%	91.3%	323	71.5%	89.2%	775	66.5%	83.5%
Parts Tech	NW	0	Not App	Not App	12	83.3%	100.0%	15	60.0%	73.3%
(3 years)	NE	13	84.6%	92.3%	12	91.7%	100.0%	0	Not App	Not App
	Alberta	135	68.1%	77.0%	87	73.6%	86.2%	97	63.9%	78.4%
Carpenter	NW	10	80.0%	80.0%	23	26.1%	34.8%	14	64.3%	78.6%
(4 years)	NE	12	50.0%	50.0%	12	25.0%	33.3%	0	Not App	Not App
	Alberta	157	54.8%	66.9%	280	44.3%	63.9%	163	54.0%	69.9%
Electrician	NW	28	46.4%	71.4%	39	46.2%	74.4%	35	60.0%	77.1%
(4 years)	NE	25	36.0%	80.0%	24	66.7%	87.5%	29	55.2%	75.9%
	Alberta	291	47.8%	81.4%	515	44.3%	72.2%	304	49.7%	72.4%
Auto Serv Tech	NW	24	66.7%	75.0%	21	66.7%	81.0%	16	43.8%	56.3%
(4 years)	NE	14	42.9%	78.6%	23	52.2%	65.2%	17	70.6%	82.4%
	Alberta	395	61.0%	78.5%	395	60.5%	78.2%	272	61.8%	75.4%
Millwright	NW	13	76.9%	84.6%	28	75.0%	85.7%	18	72.2%	100.0%
(4 years)	NE	24	70.8%	87.5%	0	Not App	Not App	0	Not App	Not App
	Alberta	89	75.3%	86.5%	140	71.4%	82.1%	118	67.8%	85.6%
Heavy Equip Tech	NW	18	72.2%	83.3%	29	41.4%	62.1%	36	83.3%	91.7%
(4 years)	NE	21	71.4%	90.5%	12	58.3%	75.0%	31	80.6%	90.3%
	Alberta	214	74.8%	86.9%	260	61.9%	80.8%	268	69.0%	84.3%
Instrument Tech	NW	0	0	0	14	64.3%	85.7%	0	Not App	Not App
(4 years)	NE	0	0	0	0	Not App	Not App	0	Not App	Not App
	Alberta	0	0	0	118	43.2%	65.3%	0	Not App	Not App
Steamfitter & Gasfitter 2nd class	NW	0	Not App	Not App	0	Not App	Not App	0	Not App	Not App
(4 years)	NE	0	Not App	Not App	0	Not App	Not App	14	42.9%	57.1%
	Alberta		Not App	Not App	0	Not App	Not App	82	43.9%	62.2%
Totals	NW	112			173			172		
	NE	134			98			155		
	Sub-total	246			271			327		
	Alberta	1,546			2,000			2,079		

B. Reasons for Not Completing Programs

At present, Alberta data to support reasons for not completing apprenticeship programs is limited. Some broader observations can be made, as above in the case of Carpenters (scaffolders who have no intention of completing the program and Aboriginals who have difficulty with some technical aspects); however, care must be exercised to avoid using crude proxies that may lead to inaccurate generalizations. The most accurate approach would be to track the progress of each apprentice throughout the training period. While the Apprenticeship Branch does monitor progress from a variety of perspectives, the information is not broken down on a regional basis (as noted earlier) and manual extraction is beyond the scope of this study and the resources that the Apprenticeship Branch is able to provide to the task at the present time. The “Apprenticeship Cancellation Study”, referenced earlier, should help to address some of the information “gaps”.

The issue of “non completion” is likely an area in which government departments may want to consult among themselves and with other stakeholders (companies, LACs, PACs and trade associations), to standardize data and approaches for the future.

C. Factors That Contribute to Apprentice Retention and Success

Factors that contribute to a decision to complete an apprenticeship program are complex and can be any combination of academic or learning skills and environment, economic/financial or personal/social. To partially address some of these factors, the reader should reference Chapter 4 – “An Analysis of Pre-Apprenticeship/Essential Skills Programs” and Chapter 5 - “Alternate Models for Apprenticeship Training”. However, in general, a rigorous and recent analysis of these factors is currently lacking in the Alberta context, but should be addressed in the “Apprenticeship Cancellation Study”, noted above.

In the absence of certain data in Alberta, a review of research completed in British Columbia, may provide helpful insights for Alberta. Findings from the ITAC/ELTT Apprenticeship Review ² indicate that the attrition rates for apprentices are very high across all trades. In many cases, the number of apprentices leaving a particular trade is equal to, or in excess of, the number entering the trade. The reasons for this high drop-out rate are not clear at present and further investigation will be required to determine the exact cause; however, it is clear that addressing this problem must become a very high priority. Technical training plans for each trade are developed and funded annually based on the number of apprentices in the system. Reducing attrition rates would improve the efficiency of the system, be more cost effective, and would have a positive effect on the number of apprentices who complete their training and become credentialed as trades people.

Findings from the ITAC/ ELTT Apprenticeship review also clearly indicate a marked difference in apprenticeship completion rates between individuals who enter an apprenticeship via an ELTT

² http://www.victoriaworkforce21.com/docs/4_New_Models.htm

program and those who are direct entrants, meaning they have no previous formal education or training in the field. **The data suggest that many individuals entering an apprenticeship who have completed an Entry-level program are approximately twice as likely to complete an apprenticeship after four years than a direct entrant.** The reasons for this high completion rate, in comparison to direct entrants, are not clear at this point, but it is suggested that ELTT programs act as a screening or selecting mechanism with the individuals who most successfully complete the programs, moving on to apprenticeship. Further work will need to be done to determine the exact reasons for entry-level student success in apprenticeship, and to develop strategies based on the finding to increase the success rates of all apprentices.

III. Implications and Future Action for Northern Colleges

- 1. It is suggested that colleges work closely with other stakeholders (particularly the Apprenticeship Branch of Alberta Learning, Alberta Human Resources and Employment, Human Resources Development Canada, Statistics Canada, as well as various trade associations to share and improve the information that is available regarding reasons for not completing apprenticeship programs and to be able to present the information easily in a way that will facilitate optimal decision making and resource allocation.**

This process can be expected to be one of continuous improvement but will be of vital importance given the serious skilled worker shortages that are expected to become more acute in the future.

Chapter 4 **An Analysis of Pre-Apprenticeship/Essential Skills Programs**

This chapter provides an analysis of the need for and benefits of pre-apprenticeship programs that provide essential skills.

I. Overview of Essential Skills

Essential Skills are the skills people use to carry out a wide variety of everyday life and work tasks. They are not the technical skills required by particular occupations, but rather the skills applied in all occupations that:

1. Help people perform the tasks required by their occupation and other activities of daily life.
2. Provide people with a foundation to learn other skills.
3. Enhance people's ability to adapt to change.

A. The Classification System Used by Human Resources Development Canada

According to Human Resources Development Canada ³, there are nine essential skills: 1) Reading Text; 2) Document Use; 3) Writing; 4) Numeracy; 5) Oral Communication; 6) Thinking Skills; 7) Working With Others; 8) Computer Use; and 9) Continuous Learning. A brief overview of each, including a discussion of why the skill is important, is presented below.

1. Reading Text - refers to reading material that is in the form of sentences or paragraphs. It generally involves reading notes, letters, memos, manuals, specifications, regulations, books, reports or journals and includes:

- Forms and labels if they contain *at least one paragraph*;
- Print and non-print media (for example, texts on computer screens and microfiche); and
- Paragraph-length text in charts, tables and graphs.

To be able to read to understand and apply what has been read is of great importance because of the increasing complexity of work, profit and safety pressures, and for liability issues.

2. Document Use - refers to tasks that involve a variety of information displays in which words, numbers, icons and other visual characteristics (e.g., line, colour, shape) are given meaning by their spatial arrangement. For example, graphs, lists, tables, blueprints, schematics, drawings, signs and labels are documents used in the world of work. If a document includes a paragraph of

³ http://www15.hrdc-drhc.gc.ca/english/readers_guide_whole.asp

text such as on a label or a completed form, it is also included in *A. Reading Text*. Documents requiring the entry of words, phrases, sentences and paragraphs are also included in *C. Writing*.

Document Use includes:

- Print and non-print media (for example, computer screen or microfiche documents, equipment gauges, clocks and flags); and
- Reading/interpreting and writing/completing/producing of documents.

Documents often occur simultaneously as part of the same task, e.g., completing a form, checking off items on a list of tasks, plotting information on a graph, and entering information on an activity schedule.

Many trades and occupations have a need to use documents whether they be reports, computer print – outs, tables, charts, sketches, blueprints, manuals or reference guides. Documents provide information and guidance for “what to do and when”.

3. Writing - includes:

- Writing texts and writing in documents (for example, filling in forms); and
- Non-paper-based writing (for example, typing on a computer).

The increasing use of, or requirement to write, words on paper but also drawing sketches, tagging scaffolding, and the electronic recording of readings and times driven by, for example, customer reports, maintenance instructions, installation instructions and safety reports, reinforces the importance of writing skills.

4. Numeracy - refers to the workers’ use of numbers and their being required to think in quantitative terms. The Numeracy section of the Profile has three main components.

- Complexity Rating;
- Numerical Calculation;
 - Money Math
 - Scheduling or Budgeting and Accounting Math
 - Measurement and Calculation Math
 - Data Analysis Math; and
- Numerical Estimation.

While the range of math applications varies from trade and occupation, understanding the basic meaning of numbers is vital and can make a significant impact on customer satisfaction, safety and profits.

5. Oral Communication - pertains primarily to the use of speech to give and exchange thoughts and information by workers in an occupational group. The Oral Communication section of the Profile has six main components:

- a. Complexity Rating;
- b. Examples;
- c. Oral Communication Profile;
- d. Modes of Communication Used;
- e. Environmental Factors Impacting Communication; and
- f. Other Information.

A worker's ability to listen effectively, understand what is being said and communicate clearly with others is considered by many employers to be the most essential of the essential skills. Increasingly, workers are being required to communicate with a wide variety of workers across several trades. In addition, journeymen are becoming more involved with the training of apprentices through activities such as mentoring, which also reinforces the need for listening skills.

6. Thinking Skills - differentiates between five different types of cognitive functions. However, these functions are interconnected. They include:

- a) Problem Solving - involves problems that require solutions. For example, a mechanic solves problems, e.g., the car shakes when driven over 80 km./hr., by eliminating probable causes until the correct one is identified and remedied. Most problems concern mechanical challenges, people or situations.
- b) Decision Making - refers to making a choice among options. It occurs during problem solving, but not all decision making is part of problem solving. It is, therefore, presented as a separate thinking skill. For example, buyers for retail outlets regularly make decisions about which suppliers to buy from, i.e., they select among the options for particular types of merchandise. This is not problem solving.
- c) Job Task Planning and Organizing - refers to the extent to which the workers plan and organize their own tasks. It does not refer to involvement in the planning function for the organization in which they work.
- d) Significant Use of Memory - includes any significant or unusual use of memory for workers in the occupational group. It does not include normal memory use that is a requirement for every occupation.
- e) Finding Information - Information involves using any of a variety of sources including text, people, computerized databases or information systems. Finding Information is highlighted in this section of the Profile as an essential job skill. However, workers' use of various information sources may be referred to in other sections such as *A. Reading Text*, *B. Document Use*, *E. Oral Communication* and *H. Computer Use*.

7. Working with Others - examines the extent to which employees work with others to carry out their tasks. Do they have to work co-operatively with others? Do they have to have the self-discipline to meet work targets while working alone?

8. Computer Use - indicates the variety and complexity of computer use within the occupational group.

Computers have now become a part of every day life and the increasing demands for better technologies and faster performance, among others, demands that trades people have a basic understanding of them.

9. Continuous Learning - examines the requirement for workers in an occupational group to participate in an ongoing process of acquiring skills and knowledge. Continuous Learning tests the hypothesis that more and more jobs require continuous upgrading, and that all workers must continue learning in order to keep or to grow with their jobs. If this is true, then the following will become essential skills:

- Knowing how to learn;
- Understanding one's own learning style; and
- Knowing how to materials, resources and learning opportunities.

Technology is advancing and changes are occurring in the work place faster than ever before, and it is vital that workers stay abreast of these changes.

In closing this discussion, Human Resources Development Canada has developed a database of essential skills profiles for over 150 entry-level occupations. Included for each occupation are a series of complexity ratings that, in some cases, coincide loosely with career advancement in the occupation. While the database is too complex and broad to be included in this discussion, additional details including how it was developed can be found at the Human Resources Development Canada web site.⁴

B. Other Essential Skills

The Conference Board of Canada's *Employability Skills Profile* also includes items such as honesty, persistence and a positive attitude to change. Higher skilled occupations, of course, also require a variety of technical skills.

For some, *English as a Second Language* (ESL) is rapidly becoming an essential skill. As aging trades people retire, employers are beginning to look more frequently to attracting workers whose first language is not English.

⁴ http://www15.hrdc-drhc.gc.ca/english/all_profiles.asp.

II. Examples of Some Existing Essential Skills Programs

In Alberta, and other parts of Canada, there is a wide variety of programs that have been developed to address the essential skills problem. Many have been developed with the support of major employers, such as Syncrude, as well as trade associations such as CINESTA, the Construction Industry Network for Essential Skills Training in Alberta. Specific examples of programs follow.

A. British Columbia's Career Technical Services

In British Columbia Career Technical Centres (CTCs) combine high school technical training with apprenticeship training. Designed for Grade 11 and 12 students, the 2-½ year programs were developed collaboratively with industry so that students can go directly from school to work. Students can start as early as age 15, and all of their work time goes toward their graduation requirements and they have the option of continuing their apprenticeship after graduation. The program is free, and every student who maintains high standards is eligible for a \$1,000 scholarship.

Initially started in 1994 in Abbotsford, the program opened with four programs and 70 students. Today, the Abbotsford program offers 10 programs serving over 400 students. Three pilot programs began operations in 1999 in Nanaimo, Kamloops and Prince George. Each functions slightly differently, however, the key component is partnerships between high schools, community colleges and business. Five CTC regions began operations in 2001. The province is broken down into community catchment areas, and the schools within each catchment area are working with the colleges to create CTCs. There are now eight CTC regions offering over 40 programs.

One of the primary objectives is to create graduates whom have skills and the attitudes and work ethics that employers need. The school year is divided into five "Quarters", each 10 weeks long, and the school day is divided into three block and most students take courses for two blocks. The program is 50% theoretical and 50% practical. In B.C. there are four levels of technical training to certification. The CTC covers 100% of Level 1, 50% of Levels 2 and 3, and 25% of Level 4. It allows students to obtain journeyman status earlier and the summer work provides students with cash flow.

B. Existing Programs at Colleges and Technical Institutes in Alberta

The following tables, while perhaps not exhaustive, provide an overview of the specific focus, type and depth of essential skills related programs in Alberta.

The first table pertains to programs that have been developed in conjunction with CINESTA. The second is a listing of programs at other colleges and technical institutions that may not necessarily be associated with trades organizations within the province.

*A Review of Issues Pertaining to the Apprenticeship System in Northern Alberta
Chapter 4 –An Analysis of Pre-Apprenticeship/Essential Skills Programs*

Organization And Program	Program	Targeted Audience	Training Format	Dates	Duration	Location	Class Size	Pre-Training Skills Assessment	Cost
Bow Valley College (Calgary)	Construction Craft Labourer	Workers wanting to pass the exam	Modular including classroom and self teaching	According to participants' needs	100 hours with some flexibility to adapt	Downtown Calgary, work sites or elsewhere	Varies from five to 20	Yes	Varies according to location and number of participants
	Apprenticeship Reading Program	Workers who must pass the entrance exam; those in need of remedial assistance and those whose first language is not English	Modular- designed for independent study that is supplemented by seminars and classroom training	Offered year round with classroom instruction two nights per week.	Five months	Main campus	Varies from five to 20	Yes	Contact registrar
Calgary Catholic Immigration Services	Electrician Upgrading	Unemployed immigrants with hands-on experience, the equivalent of grade 10 and some English	Full time classroom supplemented by technical and shop instruction at SAIT	Early April each year	22 weeks	CCIS and SAIT	15	Yes. Process takes eight weeks	No cost. Funded by AHRE
Mennonite Central Committee (Calgary)	Trades Entry Program	Immigrants and Aboriginal men and women	Full-time classroom and shop with work experience component	Continuous	21 weeks	Calgary	Not Available	No information available	No cost. Funded by AHRE
	Job Retention Workshops	Immigrants and Aboriginal men and women	Workshops	Continuous	10 hours	Calgary	Varies	No	According to location and participants
Metro Community College (Edmonton)	Gateways to Apprenticeship	Those over 18 and in need of math, English and science upgrading and would also benefit from work experience	Full-time classroom supplemented by work experience and job placement	January, April/May and September	15 to 30 weeks according to individual needs	Downtown Edmonton	18 to 20	Yes	Contact registrar
NorQuest College (Edmonton)	ESL Trades Program	Immigrants	Full-time classroom supplemented by work experience and job placement	September	27 weeks	NorQuest and NAIT		Personal interview before acceptance into the program	\$1,790
	Pre-Trades Math and Science	Those in need of upgrading or have received a conditional grade (45% to 65%) on entrance exams	Part-time classroom three hours, twice a week	Multiple intakes	60 hours over 10 weeks	NorQuest downtown	Varies	No	\$300
	Customized Essential Skills Training	As needed	As needed	As needed	As needed	As needed	As needed	If needed	Varies according to needs
Keyano Coll (Fort McMurray)	Effective Reading in Context (ERIC)	All levels in construction trades	Customized workshops	Flexible	8, 28 and 40 hours duration	Participant's work sites	Maximum of 8	Yes. Confidential 2hour assessment	Varies.
	Working in Numeracy (WIN)	All levels in construction trades	Customized workshops	Flexible	40 hours	Participant's work sites	Maximum of 8	As above	As above.

Other Essential Skills Related Programs at Colleges and Technical Institutes

Organization And Program	Program	Targeted Audience	Training Format	Dates	Duration	Location	Class Size	Pre-Training Skills Assessment	Cost
Northern Lakes College	Essential Skills for Supervisors	New supervisors	Seminar	Ongoing	2 days	Various	Not Av	No	Not Av
	Academic Upgrading	Those at least 17 and motivated	Classroom	September and January	Full semester	Slave Lake	Not Av	Yes. Placement assessment	\$2,155
	Pre-employment Carpentry	Prospective apprentices	Classroom and Lab	Not Av	Not Av	Slave Lake	Not Av	No	\$2,262
Fairview College	Trades Orientation	Those wishing to explore a trade (51 in total)	Classroom and practicum	September and January	19 weeks	Fairview	Not Av	No	\$1,067
	Welder Pre-employment	Prospective apprentices	Classroom and lab	September to late November	12 weeks	Fairview and Grande Prairie	Not Av	No	\$2,537
Portage College	Pre-employment Cooking	Prospective apprentices. Those interested in entry level employment	Classroom and Lab	September	16 weeks	Lac La Biche	Not Av	No	\$1,315
	Pre-employment Welding	As above	Classroom and Lab	September	22 weeks (including 4 week work experience)	Lac La Biche	Not Av	No	\$1,315
	Academic Upgrading	From Grade 7 to university transfer	Classroom	September and January	Semester	Lac La Biche	Not Av	Yes. Placement	\$2,630
Lakeland College *	Various Pre-employment	NOT						AVAILABLE	
SAIT **	Various Pre-employment	Prospective apprentices. Those interested in entry level employment	Classroom and Lab	November and February	12 weeks	Calgary	Not Av	Yes	\$3,600 to \$4,300

* Lakeland College pre-employment programs include: Automotive; Carpentry; Welding; Electrical; and Heavy Equipment Operator.

** SAIT pre-employment programs include: Cabinet Making; Carpentry; Electrician; Glazier; Millwright; Non-destructive Testing; Painting and Decorating; Plumbing; Refrigeration; Sheet Metal; and Welding.

Following consultation with Apprenticeship Branch staff, it was determined that in Alberta there was a relatively low percentage of “graduates” who went on to enroll in apprenticeship programs. For example, of 318 people “tracked” who took pre-employment courses during 2001, only 51% had registered as an apprentice by March 28, 2003. The corresponding figure for the year 2002, encompassing 308 individuals is even lower; 31%. The strong economy may be a factor; however, this issue may warrant further investigation.

III. Benefits of Workplace Essential Skills Programs

While over the course of this assignment no studies could be obtained (notwithstanding the study referenced below) that conclusively quantified the economic benefits of essential skills training, it is generally recognized that skills affect the overall efficiency and effectiveness of an individual with spin-off economic benefits to labour groups, business and industry. In 2001/02 a review of all entry level and apprenticeship training programs was undertaken by the old ITAC in British Columbia. The purpose of the review was to develop a picture of the linkages and connections between these two program areas, to develop basic statistical data on outputs, transfer, and completion rates, etc. The outcomes of the review, if a copy can be obtained, may provide a baseline data that can be used to determine future funding and direction for these programs.

The Conference Board of Canada's research on this topic ⁵ determined the following general benefits:

- Increased ability to handle training on the job;
- Better team performance;
- Improved labour-management relations;
- Increased quality;
- Improved results in job specific training/quicker in training results;
- Reduced time per task;
- Increased output of products and services;
- Reduced error rate;
- Better health and safety records;
- Reduced wastage;
- Increased retention of employees;
- Increased customer retention;
- Reduced absenteeism; and
- Success in transferring employees.

The strong support of organizations such as Syncrude for Programs such as Effective Reading in Context ERIC and Working in Numeracy (WIN), (at Keyano College in Fort McMurray) and CINESTA, the Construction Industry Network for Essential Skills Training in Alberta (at six colleges/locations in Alberta) give testament to the value industry places on Essential Skills Training.

⁵ Bloom, M., Burrows, M., Lafleur, B., and Squires, R. [The Economic Benefits of Improving Literacy Skills in the Workplace](#). The Conference Board of Canada, 1997)

IV. Implications and Future Action for Northern Colleges

The interface or linkage between Entry-level Trades Training (ELTT) programs and the apprenticeship system is one of the factors that can influence the number of trades people that can be trained in a given time frame. ELTT programs are one of the main gateways into the apprenticeship system and play an important role in preparing people for the trades.

At the present time, while more research is need to determine the reasons for the lower levels of continuations in Alberta, there would appear to be a need for essential skills programs. The reasons are complex and intertwined with the economy of the province and need for skilled workers, demographic changes, the apprenticeship system itself, the basic education system, our existing perceptions toward apprenticeships as well as our societal values. Some of the reasons and issues are listed below:

- There is still a perception (and reality in some cases) of the trades as being “an escape route” for “underachievers” or for “those who could not get into university”. In some cases, those “channeled” do have “deficits” that need to be addressed.
- However, educators are finding in many instances that such students have learning disabilities, or learn better in other ways that the secondary educational system has not utilized or “perfected”. With assistance, many of these students become fully productive.
- The education system itself may have done apprenticeship a disservice by not keeping pace with technological or work place changes that are occurring in the trades. Some graduating students are not well prepared.
- One potential solution would be to adopt a rigid system such as that in Germany (and discussed at greater length in Chapter 6), where strict pre-requisites exist for apprenticeship and educational programs. However, our societal values in Alberta regarding education are in keeping that it should be available for all.
- In some instances, young people do not have the “work ethic” essential skills, whether a result of family related issues, or broader societal failings for a wide range of possible reasons.
- Training methods in the trades are in some instances changing in that there is greater use of journeymen as mentors. Some may be lacking in essential skills as a result of their “upbringing” through the system; however, for many “teaching” is a new frontier for which they are ill prepared.
- Because of our economy in Alberta, demographic trends in general, and some factors such as negative perceptions toward trades, we have a serious problem of a shortage of skilled labour. To stem the shortage, other groups such as foreign workers, women and minorities are being encouraged to the trades sector. Their societal and cultural backgrounds are, in some cases, such that remedial attention is necessary.

Perhaps some of the above issues will be resolved or addressed better over the course of several generations. In the mean time, In order to maximize systematic ability to train highly skilled trades people, the interface or connections between entry-level and apprenticeship programs must be

clear and well defined, with specific goals and performance objectives. For the colleges of the Clearinghouse system it is suggested that:

1. Strategies to improve the efficiency and effectiveness of ELTT programs and their linkages to apprenticeship should be considered.

These strategies may include developing closer links with employers regarding their needs, developing closer linkages to market demand/job availability, developing more trade specific and less generic programs, shortening the length of programs where appropriate, and finally blending, reforming, or modifying entry-level programs into new apprenticeship models, as suggested in Chapter 5.

These strategies can also help to foster an integrated approach to some of the underlying needs; better-coordinated approach among stakeholders; will facilitate better dissemination of new and best practices in the area; and local feedback into apparent issues such as low levels of registration in apprenticeship programs.

According to Alberta Apprenticeship Branch staff, the needs in this area are likely to be characterized by being short-term and industry sponsored (such as the “train the trainer” concept) and highly customized according to local needs. Industry should provide strong support and participation in the development of the training program for optimal effectiveness.

2. Under no circumstances should program standards be lowered.

Alberta Apprenticeship Branch staff cite the example of a residential constructor pilot program involving Aboriginals that failed because of low standards. Employers found graduates to be very lacking and graduates had very low esteem associated with their training experience.

3. It is suggested that from an academic perspective, colleges and their faculties may need to be increasingly sensitive to Learning Disabled (LD) students and those who have been away from an educational environment for longer periods of time, and colleges must work to increase the success rate of these students.

Most programs are a compressed six to eight weeks and it is difficult to discover a student and take steps to assist. Also, many programs are male dominated, and males are traditionally more reluctant to ask for help. There is also a stigma associated with acknowledging having a learning disability.

For those students who are not “Learning Disabled”, pre-apprenticeship programs can be expected to play an important role, particularly during the current period of changing

enrollment standards and realization that training for those entering the trades may need an “overhaul”.

A program started at Fanshawe College in Ontario in 1998 with funding from the Learning Opportunities Task Force may warrant review to ascertain whether components can be adapted to the needs of northern Alberta colleges. Among other things, professors were asked to seek out LD students and in effect provide them with “Just in Time” counseling. The results of the program are summarized below:

1. In the first year 54 students asked for help; in the second there were 100.
2. The failure rate in the basic level of the electrical division declined from 23% to 5%

Some of the technology available to assist LD students includes:

1. The “Text to Voice Kurzweil 3000” is a software program that scans text and then reads it back. The look and formatting of the source material is maintained once it is scanned, something that is lost with other programs.
2. For translating voice to text, the college uses Dragon Naturally Speaking, which enables students to dictate tests or other material and have the results appear on a computer screen.
3. Another useful program is Word Q, a screen reader/word predictor that reads information from the Internet and other sources.
4. Other adaptive devices include Franklin Language Master for word predictions.
5. An individual was also hired to compile point form “Coles Notes” on a 1,500 page automotive text.
6. The college now asks registering students if they have a learning disability and takes actions on the second day of the program.
7. Other measures include loan of computers for the Kurzweil and Dragon programs, increased time on tests, taped tests and exams, and a reader or scribe for tests.

Chapter 5 **Alternate Models for Apprenticeship Training**

This chapter provides an analysis of alternate training models. It also addresses some of the issues that are known to affect success in training to the credential level and introduces some potential changes that may help not only to improve results but also the efficiency of the overall training system.

At present, the primary method of providing apprenticeship training in Alberta is what is known as the "Block Release". In effect, all apprentices are released from work to attend classes for specified "blocks" or periods of time that can range from three to 12 weeks per year. The method has a number of problems such as: scheduling of training; finding accommodation for apprentices; disruption at the apprentices place of work; and issues associated with being away from family/home for long periods of time. Some of these matters are discussed at greater length in Chapter 8.

I. New or Alternate Training Models

To help to address the issues of satisfying serious labour shortages and greater efficiency and cost savings for all stakeholders, a number of alternative training models have been developed and, in some cases, evaluated. A more detailed discussion of some of the models is presented below.

A. Models Used by the Government of Alberta

Since 1997, the Government of Alberta has experimented with four alternative models:

- ***Competency Based Apprenticeship Training (CBAT)*** - allows an apprentice to progress through training modules at a rate determined by an individual's capabilities and work experience. Depending on the time taken to complete the training, an apprentice may be able to take the industry exam after say six weeks rather than the customary eight weeks.
- ***Mobile Delivery*** - Mobile Delivery involves providing technical training in the geographic location where the training is required, and in a specific period, such as four, six or eight weeks.
- ***Weekly Apprenticeship Training Systems (WATS)*** - previously or sometimes known as "day release" training, provides technical training in short segments such as one day a week over a period of 30 to 40 weeks, thereby enabling the apprentice to remain employed full-time while receiving training.

- **Distance Delivery** - Distance Delivery provides modular training over a distance using telecommunications technology in a web-based learning environment, combined with scheduled practical instruction arranged by the training provider and the apprentice.

Some commentary to provide perspective to the scope of alternate delivery methods is in order. In 1999/2000:

- The total number of apprentices in attendance for the four different methods was 7,584, with the split between traditional and alternate methods of instruction approximately 50/50.
- The quota or seats allocated was 8,380 comprised of 4,078 (49%) for alternate delivery and 4,302 (51%) for traditional delivery.
- On average, these classes were filled to 79% capacity with the figures for alternate and traditional being 78% and 80%, respectively.
- Four hundred and nine (409) apprenticeship classes were offered in the year with 240 offered via traditional delivery and 169 offered by alternate delivery as summarized in the following table.

Trade	Traditional	Mobile	Distance	CBAT	WATS	Alternate Sub-total	Total
Bricklayer	3	3				3	6
Carpenter	35			31	2	33	68
Electrician	27		4	66	2	70	97
Welder	56		3	35	2	40	96
Machinist	30				6	2	32
Cook	17					6	23
Tile Setter		1				1	1
Communication Electrician	4	2				2	6
Appliance Service Technician	2						2
Baker	9						9
Partsperson	23				2	2	25
Roofer	3	2				2	5
Crane and Hoist Operator	10	1				1	11
Cabinet Maker	15				1	1	16
Concrete Finisher	2						2
Locksmith	4		2	4		6	10
Total	240	9	9	136	15	169	409

An evaluation of these alternative methods of program delivery (*An Evaluation of Alternate Delivery of Technical Training in Apprenticeship*) was completed in February of 2001. The evaluation was conducted from the perspective of apprentices, employers and training staff with findings based upon 1,796 surveys (1,103 apprentice, 628 employers and 65 institutional staff) as summarized below.

a) Student Perspective

Overall Quality of Technical Training	Overall, 87% of respondents were satisfied. Block Release, CBAT and WATS had the highest level of satisfaction (91%) with Distance Delivery (89%) and Mobile Delivery (87%). However, CBAT and Distance Delivery students were less likely to respond that the training had improved their skills.
Quality of Instruction	80% of respondents expressed satisfaction with methods; however, 29% of Distance Delivery students expressed dissatisfaction with the availability of instructors.
Quality of Instructional Materials	At least 71% of respondents were favourable: Mobile Delivery and WATS students were the most satisfied, while 20% of CBAT and 19% of Block Release students were dissatisfied.
Convenience	All of the alternative models were deemed to be more convenient than Block Release.
Preferred Method of Delivery	Block Release was the preferred because it is considered to be more "hands-on", concentrated, and has better access to instructors.
Impact on Decision to Stay in the Field if Block Release Were the Only Training Method	Almost 90% stated that they would stay in the field. Location of residence was not a significant factor.
Feedback/Notification of Exam Results	Regardless of the method of delivery, 57% of respondents were satisfied. However, Block Release and CBAT students were significantly lower in satisfaction regarding the time it took to get exam results (27% and 22%, respectively).
Quality of information/Advice	All students, irrespective of training method, were generally satisfied and pleased with the service provided.

b) Employer Perspective

Overall Quality of Technical Training	80% of employers satisfied; however, there was a perception that Distance Delivery and CBAT are not as effective as other methods in improving students' skills.
Convenience	While Block Release was perceived to provide the best training, there was a high level of satisfaction for convenience with the alternative methods ranging from: 100% for Mobile Delivery; 87% for WATS; 79% for Distance Delivery; and 73% for Block Release.
Preferred Method of Delivery	Overall, Block Release was the preferred method; however, there was a belief that WATS offered convenience in scheduling staff and training.
Willingness to Support Training if Block Release Were the Only Method	52% of employers would support technical training of Block Release were he only method, while 34% indicated that they would be opposed to such a measure.
Feedback/Notification of Exam Results	80% of employers were generally satisfied; however there are differences in the level of satisfaction associated with the method of delivery as follows: CBAT (85%); Distance Delivery (84%); Block Release (82%); and WATS (70%).
Quality of information/Advice	87% of respondents were generally satisfied; however, a relatively high proportion of those contacted (200 out of 1,550) were not aware that their apprentices had received training via alternate delivery.

c) Institutional Staff Perspective

Overall Quality of Technical Training	Satisfaction was highest (90%) with Block Release and WATS; followed by CBAT (88%); Distance Delivery (74%); and Mobile Delivery (63%). There was a perception that with the latter two methods, students do not have access to the full range of training facilities or instructors. Other methods, while flexible, require more discipline, which some apprentices do not have.
Convenience	Generally, there was a perception that the alternate methods were convenient. Block Release was considered to be more convenient for apprentices (82%) than for apprentices (66%).
Preferred Method of Delivery	Block Release provides a more concentrated and focused training session with fewer distractions. Of alternate methods, WATS is desirable because it allows students to quickly apply what they have learned, while CBAT is liked because it offers a flexible and self-paced learning experience.
Perceptions Regarding Alberta Learning	Generally staff considered the relationship with Alberta Learning to be good; there were some who suggested that additional resources should be dedicated to alternate methods of instructional delivery.

d) School and Industry Examination Marks

A review of marks for the 1998/99 and 1999/2000 years indicates **very little difference** on the basis of training model used.

For the 1999/2000 year the average marks of apprentices were as summarized in the following table.

Average Marks

Exam/Method	School Theory	Practical Exam	Industry Exam
Traditional	81%	80%	77%
Alternate	82%	82%	77%

e) Completion/Success Rates

Students who received their training via one of the alternate methods had, on average, lower failure rates, but slightly higher incomplete rates. There was very little difference in the average numbers between the 1998/99 and 1999/2000 school years; however, there was some significant variation in the pass/failure rate depending on the specific method of training.

The results for the year 1999/2000, which encompassed 7,323 apprentices of whom 6,361 passed and 640 failed and 322 were incomplete, are summarized in the following table.

Success/Completion Rates

Exam/Method	Pass	Fail	Incomplete
Traditional	86%	12%	2%
Alternate	88%	5%	7%

With respect to differences arising from the type of instruction, the Traditional, CBAT and Mobile approaches had the highest pass rates. The pass rates for WATS and Distance method students were less, **markedly in some cases**. The differences in pass rates, according to the method of training received for 1998/1999 and 1999/2000 are summarized in the following table.

Pass Rates According to Method of Training

Year/Method	Traditional	CBAT	Mobile	WATS	Distance
1998/1999	86%	93%	82%	65%	54%
1999/2000	86%	92%	81%	75%	50%

The poorer performance of apprentices receiving training via the distance method is likely explained by issues related to study skills and discipline; however, at this stage, there is no explanation for the WATS score. They may also be attributable to a lack of focus on lessons while also working. It is noted that WATS and Distance students had poor completion performance. In 1998/1999 approximately 22% of WATS and 42% of Distance students did not finish their programs. For 1999/2000 the comparable "incomplete" figures are 13% for WATS (some improvement) and 45% for Distance.

f) Program Costs

The cost data for the alternate methods was embedded in Block Release budgets, which made the task of drawing comparisons unfeasible. It is noted that for the 1999/2000 year, there was a wide range of costs according to the program and number of students.

However, more generally, costs ranged from approximately \$1,500 per FLE⁶ for SAIT's concrete finishing program to over \$13,000 for NAIT's Boom Truck program.

B. Other Theoretical Models

Below are a number of other theoretical models for the delivery of apprenticeship training and the credentialing of trades people. These programs, referenced in the Government of British Columbia ITAC/ ELTT Apprenticeship Review⁷ are designed to:

⁶ FLE stands for Full-time Learning Equivalent. There are, on average, 4 apprentices per FLE.

⁷ http://www.victoriaworkforce21.com/docs/4_New_Models.htm

- Increase the effectiveness of the training and credentialing system,
- Provide more flexibility for employers and workers,
- Increase system capacity, and
- Reduce the total training time required for skilled workers.

These models are offered for discussion purposes, with the understanding that more work would be required to bring them to the operational level.

1. Internship Model

This model, which combines classroom learning with on the job training, could be used for a number of high demand trades. The total duration of the training program could be thirty-six months in length. Currently, most traditional apprenticeship programs are forty-eight months in length.

The in-school portion of the training would be delivered at the beginning of the program or prior to entering the workforce and would be delivered over eighteen months or half the length of the apprenticeship term. During this period, the apprentice would complete all of the technical training required for the trade.

Level examinations and reasonable progress would be required in order to maintain a place in one of these programs.

Upon completion of the in-school portion of the program, the apprentice would enter the workforce and would work as an advanced apprentice in the trade for the second half of their apprenticeship.

Upon successful completion of the apprenticeship term, the apprentice would be eligible to challenge the Certificate of Qualification examination or Interprovincial examination, whichever is relevant. There may be a need for the apprentice to attend a preparation program prior to challenging the exam. Such preparatory sessions are common for professions, such as Chartered Accountants, before writing the Uniform Final Exam.

This model would provide trained trades people in a shorter period of time, would make more effective use of the apprenticeship or industry training places available, and would potentially make more effective use of available funding. It would be a major departure from the current models and may require further evaluation in order to receive “buy in” from stakeholders. A potential issue is that, as discussed in earlier parts of this chapter, apprentices seem to learn best during shorter training periods. There may be issues related to retention of material studied over a more protracted study time of say 18 months. Furthermore, a potential risk is that students may not receive state-of-the-art technical training if there is a “lag” period between the start of “school” and the end of “work”.

2. Cooperative Programs

Cooperative programs combine school and work-based training in alternating groups of months (e.g. three months of school; three months of work). These programs are intended to meet the needs of specific industrial sectors that do not lend themselves well to the traditional model. Typically, trades cooperative programs are developed in close cooperation with an industry steering committee or sector group and an educational institution. The steering committee acts on behalf of industry/employers during the planning and development stage of the program, providing guidance and advice to ensure that the program meets the particular needs of industry.

The steering committee would work closely with the educational institution to develop an annual school/work-scheduling model that will accommodate the business cycle of the industry involved. Students gain significant on-the-job skills through the scheduled work experience.

Once the program is up and running, the steering committee plays an ongoing role in ensuring that the program stays current with changes in technology and industry needs, etc. The steering committee also takes responsibility to ensure that there is a direct link between labour market demand and the number of graduates from the program.

Cooperative programs provide apprentices with job-ready skills faster than the traditional system. Used in other setting, such as university programs, they have been proven to work best when developed and operated in close cooperation with an industry partner or sponsor.

This approach, somewhat similar to the German “Dual” system (discussed in Chapter 6), may be desirable for new and emerging trades that are particularly knowledge based or intensive, and for which longer periods of technical training may be needed. A potential issue from the perspective of employers may be workplace disruptions while apprentices attend technical training systems.

3. Progressive Apprenticeship

Progressive apprenticeship allows for staged or ladder training and credentialing for a number of traditional and new trades programs. The United Kingdom’s NVQS, discussed in Chapter 6 and Appendix 2, is an example. The top 3 of 5 levels are considered to be “advanced apprenticeships”.

A number of clearly defined stages, bodies of knowledge, and/or skill areas would be identified within a given trade. Ideally, the stages would fall around natural breaks or levels of expertise within a complete training program. Training and appropriate credentialing would be provided for each stage. Clearly defined outcomes for technical training and on-the-job training would be defined for each stage.

Following this model, an apprentice is provided with training and credentials as each stage of the program is completed. Each stage would contribute towards the completion of a full apprenticeship program, or would stand-alone.

Technical training would accommodate the needs of staged or progressive apprentices, as well as traditional apprentices. The intent of this approach would be to develop a progressive system of training and credentialing that would provide more flexibility for employers and more options for apprentices.

It is suggested that a combination of adoption and or piloting of the above models and changed practices would go a long way toward increasing the number of credentialed workers to meet industry skills shortages.

4. Refocus Classroom Training to Concentrate on Theory Not Tools Use

Typically, classroom-based apprenticeship technical training programs contain some measure of practical or hands-on instruction, in addition to that provided on the job. The breakdown for a typical class might be sixty percent theory and forty percent practical. This can vary depending on individual trade or program needs. Reducing or eliminating hands-on-tools training within the classroom-based component of training could significantly reduce the in-school training time for a given program. In some cases, this may be as much as forty percent of total in school time. Even a modest reduction in institutional training time could result in a substantive increase in efficiency. If practical training were delivered on the job site, rather than in the classroom, the equipment requirements for apprenticeship classroom delivery would also be less expensive to meet and maintain. An in-depth analysis of this concept could be undertaken to provide a more accurate picture of the implications of this strategy, the potential benefits, and increases in effectiveness and potential downsides.

5. Increasing Utilization Rates

The utilization rate for training refers to the number of students who come to class of those whose training has been funded and scheduled. For example, if 8 students of 16 scheduled attended class, the utilization rate would be 50%. Maximizing utilization rates can be expected to increase the efficiency of the training system and provide more training opportunities for apprentices. Traditionally, average utilization rates for apprenticeship technical training classes across all trades have been steady at approximately 80%, with some trades at lower rates and some classes “overproducing” (i.e. more than the scheduled number are accommodated in the class). Moving this figure upwards has traditionally proven to be very difficult. To address this problem, appropriate measures might include:

- Developing service contracts with training deliverers based on utilization;
- Providing incentives to institutions to maximize utilization and/or;

- Non-refundable deposits for apprentices.

II. Implications and Future Action for Northern Colleges

- 1. While the lead needs to come from industry and the Apprenticeship Branch of Alberta Learning, it is suggested that northern colleges review other models of providing technical training in more detail and work with other stakeholders to explore ways and means in which they might be introduced for existing programs and for new apprenticeship programs as they are approved.**

In a world of constant change, innovation will be vital. New ways and means that help to reduce costs, increase flow through and improve success rates will be part of Alberta's competitive advantage in the future. Pilot projects that would provide important data for the development and benchmarking of future apprentice classes, perhaps according to the needs of more local industry (where concentrations of employers and apprentices might warrant special consideration), specific learning needs, preferred methods of learning of students, and the strengths and weaknesses of specific colleges in relation to specific technical programs, might be considered.

Chapter 6 **Apprenticeship/Vocational Training Systems in Other Jurisdictions**

This chapter provides a discussion and analysis of the Apprenticeship or, Vocational Education Training (VET) systems in other countries and jurisdictions. Section I provides a discussion and comparison of the systems of four countries: the United Kingdom; France; Germany and Ireland.

Section II contains a discussion of other VET systems as the time constraints of the project permitted. The overviews and discussions of the systems in the United States, Singapore, Denmark, and domestically in British Columbia are revealing; however, the analysis is not as rigorous as in Section I.

Section III provides a brief discussion of lessons that might be learned or aspects that might be applied in the context of Alberta and the colleges of the Clearinghouse system.

I. A Comparison of Systems in Four Countries

This section focuses on the systems of the United Kingdom, France, Germany and Ireland as these countries have divergent approaches to dealing with the issue and data from the European Centre for the Development of Vocational Training (CEDEFOP) facilitates some comparisons. In so doing, it attempts to address the following issues:

- How have the systems responded to changes in the way that work is organized, or the ways in which people are employed?
- How are the models/programs responding to the changing needs of employers and individuals with regard to changes in the definition of work and the skills or competencies of employees?
- How, and to what extent, is VET funded?

A. United Kingdom⁸

The vocational education and training sector in the United Kingdom has changed substantially in the past decade. The changes have been in response to both changing work and changing teaching/training conditions. There has also been significant change to the contexts in which teaching and training occurs such as the increased proportion of vocational training in schools, the rapid growth of university numbers and an increasing emphasis on technology.

In light of the preceding changes, government policy has responded in a number of significant ways:

⁸ Michael Coffey and Carl Rhodes, Structure and funding of vocational education and training in the United Kingdom, Ireland, France and Germany, UTS Research Centre Vocational Education and Training, Working Paper RP 114 02-03

- In the mid 1980s, the competency-based qualification framework, the National Council for Vocational Qualifications (NCVQ) and Qualifications and Curriculum Authority were introduced with the aim of uniting or harmonizing a previously diverse, complex and competing framework within which vocational education took place. Appendix 2 contains a more detailed discussion on the system.
- With respect to future education in more general terms, there has been a trend away from government or public responsibility toward private or individual responsibility. This approach was formalized with the White Paper *Learning to Succeed*, in 1999. The document set out a vision whereby all individuals, irrespective of background or education levels would be given an opportunity to: learn new skills; fulfill their potential; and improve the quality of their lives at home and at work.

The changes associated with the 1999 White Paper also focused the governance of the VET sector on:

- Planning rather than market mechanisms and competition.
 - Increased financial support for individuals and businesses to take responsibility for training.
 - A community based approach to partnerships.
- A key aspect of realizing this change was the establishment of the Learning Skills Council in 2001 to replace the Training and Enterprise Councils and Further Education Funding Council. The Council was created to work in partnership with other agencies from government, the private sector further education and sixth-form (approximately grade 12) colleges, and representatives of community groups. The goal was to understand, define and meet training needs. One of the Councils key changes was to move away from the “purchasing model” that had separated funding from the provision of services. Funding was to follow the individual, and thus encouraged competition among service providers. During this period, there was also a shift away from performance indicators that monitored attendance toward measuring quality and outcomes.
 - During the Further Education Funding Council era, vocational education was managed in three categories:
 - **Initial Vocational Training** for 16 to 19 year olds (excluding higher education) with 55% of activity at colleges, 37% at work places, and 8% at schools.
 - **Continuing Vocational Training** for those who were employed.
 - **Training for the Unemployed** who were over 19 years of age.

Funding

Funding is still largely provided by government and businesses, rather than individuals. In 1996-97, for example, according to the research of Coffey and Rhodes, businesses paid, both in real funds and in-kind, the biggest proportion of the VET bill (88% of CVT), while the state was the

majority funder of IVT (78%) and Training for the Unemployed (100%). Individuals directly funded, through fees, less than 1% of IVT and CVT. Public sector overall funding has actually increased.

Discussion

The UK system may be relatively cost-effective because there is little wasted expenditure due to regulated training (unlike France, discussed below) and it is relatively responsive to immediate labour market needs.

Critics of the changes have suggested that the removal of power from the local institutional base, and shift from government to the individual and business meant that the system lost accountability and transparency. On a more general level, the system is also criticized for not being responsive and strategic, or having grown in a piecemeal fashion.

This type of system suits knowledge intensive industries, where high-level skills are essential, and industries like banking where skills polarization is the norm. A challenge for the future may be that increasing skills polarization may lead to increased social exclusion and widening income gaps. The knowledge-driven economy creates fewer, high skill jobs, which tends to reinforce income polarization. In addition, skills are a devolved policy area and the devolved administrations appear to be adopting different strategies to England. This could lead to beneficial competition or to inefficiency.

B. France^{9 10}

Since the adoption of the 1971 Law on Vocational Training, the training sector has played an important part in the French economy. The law led to the introduction of mandatory levies on companies to finance Vocational Education Training as well as compulsory consultation with employees regarding training that expanded VET options during the high periods of unemployment during the 1980s. Some of the key aspects of the French apprenticeship training system are discussed below.

The French model uses the market to deliver skills but in the context of a highly centralized national education system and strong employer based internal labour markets. Workforce development is conditioned by a strong link between educational achievement, qualifications and level of entry to the labour market. Policy is also strongly influenced at the national level by the employers and the unions (in spite of the low level of unionization - 9%), with the state playing a subsidiary role. There is a strong cultural emphasis on the importance of qualifications.

There are two main policy approaches.

⁹ Ibid

¹⁰ http://www2.trainingvillage.gr/etv/publication/view_html/issue_5089/france_en/france_en.html#1

- The first is to use the centralized education system to improve the overall level of general and vocational skills of those entering the labour market.
- The second is to increase employer based training, achieved largely through the training tax or levy (currently 1.5% of payroll).

In France, vocational training is organized in two separate ways:

- **Initial vocational training (IVT)** - which includes upper secondary education and short forms of higher education. The formal nomenclature is Formation Professionnelle Initiale (FPI).
- **Continuing vocational training (CVT)** - which aims to help workers to adapt to changes in working techniques and conditions, to promote their social advancement by providing access to the various levels of vocational education and qualifications and to help them to play their part in cultural, economic and social development. This further training is intended for adults and young people already in employment or about to enter working life. The formal nomenclature is Formation Professionnelle Continue (FPC).

IVT and CVT form what the Labour Code calls 'la Formation Professionnelle Permanente' (permanent vocational training) and describes it as a national obligation for the government, local authorities, public establishments, public and private educational institutions, associations, professional, union and family organizations and enterprises (Article L.900-1 of the Labour Code).

As an example of how the system operates, in 1997, seven contracts were signed by the government and the following sectors regarding IVT and young people:

- Heavy engineering;
- Hotel industry;
- Automotive services;
- Transport and logistics;
- Construction and public works;
- Crafts; and
- Commerce and distribution.

Key Apprenticeship Reforms

The first steps towards completely reforming the apprenticeship system were made by a 1987 law establishing a full initial vocational training option (from level I (engineering diploma) through to higher than the baccalauréat + four years). It is now possible to prepare for any technological or vocational certificate through this channel.

Five years later, the five-year law of 23 December 1993 established a program to develop apprenticeship. The law also aimed to harmonize the various kinds of alternance training

(alternating periods of training in the workplace and in the school).

In order to ensure that the apprenticeship program was adequately financed, the apprenticeship tax was reformed. This tax finances all IVT schemes, and not just apprenticeship. The law of 6 May 1996 doubled the proportion channeled into apprenticeship and also established adjustment mechanisms to ensure that funds were equitably distributed. It also simplified financial incentive mechanisms. In parallel with the tax reform, the government also decided to step up its own contribution. These structural changes were accompanied by a 50% increase in student numbers in comparison with the 1980s and a diversification of specializations and places of training.

Funding

Public and private expenditure on initial and continuing vocational training has grown continuously. Thus, over ten years, their share of GNP rose from 2.2% in 1987 to 2.6% in 1991 and 2.8% in 1996 despite changes of political majority. Both the “initial” and “continuing” systems are funded through a complex array of taxes, levies (on the private sector) and government funding.

The main providers of funds for the initial vocational training system are central and local government. The Ministry of Education, spent FF 63 547 000 million in 1996 (74% of the total), while local authorities funded 12.4% of total expenditure. The large proportion contributed by central government is due to the fact that it pays the wages of most personnel, which is the top item of expenditure in the education system. Enterprises also finance IVT through the apprenticeship tax (0.5% of gross wage bills). Enterprises can use a proportion of this tax to provide additional financial help for institutions offering technological and vocational education.

Financing for CVT is shared by both government and the private sector. The private sector contributed 56% of funds in 1996. The public sector contributes through compulsory payments made by businesses and self employed persons at the rate of 1.5% of the wage bill for companies with 10 or more employees and .25% of the wage bill for organizations with fewer than 10 employees. A variety of programs are available to encourage people to take leave for training.

Discussion

The training tax system has succeeded in increasing investment in training. The problems remaining are that demand for new skills is not being met by either the education system or the training system. Also, the levy has not made any significant difference to inequalities, which currently exist in access to training, leaving the most vulnerable groups, the low skilled and unemployed, with little access to training and therefore at risk of being marginalized.

Overall there are two main weaknesses. First, the difficulties of using the centralized educational system as a preparation for work, especially in the new organizations and occupations, where

many of the new skills are more appropriately acquired in the workplace.¹¹ The second weakness concerns the unintended consequences of the training tax.¹² There is agreement between the employers, unions and the state that the current system is no longer tenable. Efforts are underway to agree on a system that will incorporate two very different objectives. The unions want to see improved opportunities for individuals, especially those in the lower skilled jobs, Small to Medium Enterprises (SMEs) and for the unemployed. Employers want a system that enhances work-based skills. What is distinctive is that the government leaves it to the employers and unions to come up with a solution: which takes time.

According to Coffey and Rhodes¹³, a constant criticism of the system is the overwhelming complexity of the system, which involves a wide range of organizations involved, and concerns over the roles of joint collection agencies, which collect both taxes and levies.

C. Germany¹⁴

Germany has an extensive system of vocational education with a rich tradition dating at least back to the medieval guilds. The German model uses the market to deliver skills but within the context of a highly regulated occupational labour market based on the apprenticeship system. The apprenticeship system has been established through the joint regulation of the state, employers and unions and is underpinned by the legal system. This provides a period of a three/four year apprenticeship for two thirds of young people.¹⁵ State involvement or intervention typically only occurs to correct weaknesses. The “system” has both an “Initial” and Continuing” component, both of which are discussed below.

Initial Vocational Training

Graduating secondary school students not intending to study at a university may choose to enter one of two sub-systems:

- The **Dual** system, a specific combination of enterprise-based training and vocational school, although with multiple forms of organization and funding covers about 380 recognized professions, each with its own apprenticeship program leading to professional certification. Student trainees work more than halftime in a firm and attend a vocational school for 1 or 2 days a week. (In some cases, apprentices alternate every 2 weeks between full-time work and full-time school attendance.) Apprenticeships (*Lehre*) have an average length of 3 years, and range from 2 to 3.5 years. In 1993, for example, around

¹¹ <http://www.cabinet-office.gov.uk/innovation/2001/workforce/report.html>

¹² Ibid

¹³ Michael Coffey and Carl Rhodes, Structure and funding of vocational education and training in the United Kingdom, Ireland, France and Germany, UTS Research Centre Vocational Education and Training, Working Paper RP 114 02-03

¹⁴ Ibid

¹⁵ <http://www.cabinet-office.gov.uk/innovation/2001/workforce/report.html>

570,000 youths nationwide signed an apprenticeship contract signifying the beginning of their professional training.

- The **Full-time Vocational School** sub-system can encompass training in a number of formats or institution types ranging from a vocational extension school, a full-time vocational school, a specialized grammar school, a college school, or a new school, the vocational college, which are mostly state schools run by municipal governments.

Individual companies provide the bulk of funding for workplace training. Since the early 1990s, the number of training places has decreased significantly, as the number of places in business has fallen.

Some additional characteristics of and issues with the German Continuing Vocational Training system are discussed below:

1. **For graduating high school students, sources of vocational information are highly transparent and uniform throughout Germany.**

In addition to government-sponsored labor office (*Arbeitsamt*) and career information centres (*Berufsinformationszentrum*), and printed information on a multitude of careers published by the federal government (*Bundesanstalt für Arbeit*) many schools have one or more teachers designated as career advisors, who gather and disseminate relevant career information to students. This often occurs in the equivalent of the ninth grade.

2. **In recent times, some have stated that Germany is moving away from its traditional “dual” apprenticeship system. A review of literature suggests that such a view is not completely accurate.**

The system was experiencing difficulties in the early 1980s as the “baby boomers” brought unprecedented demand for apprentices during a time of economic difficulty, which also contributed to fewer jobs for “graduates”. In addition, training regulations were out of step with the market place. A revision of regulations along with the “echo of the baby boom”, and recruitment of apprentices from non-traditional sources, such as women and the handicapped, had largely contributed to a restoration of balance by the late 1980s¹⁶.

In the early part of the 21st century the German apprenticeship system is faced with two pressures that may have contributed to more recent change. In the first place, economic and competitive pressures have resulted in a reduced capacity for companies to take on new apprentices and provide for their training costs, as noted above. Secondly, paths

¹⁶ <http://www.psi.org.uk/publications/archivepdfs/West/RTWGSUM.pdf>

towards apprenticeship entrance are changing. The credentials of importance are a diploma from the *Hauptschule* ("low levels of intellect" or *Realschule*, ("mid level intellect") or the *Abitur* ("academically oriented"). Students holding a *Hauptschule* or *Realschule* normally go on to apprenticeship programs. Students who earn the *Abitur* have earned the legal "right" to study at a public university. However, in recent years, for many subjects there is a system of selection in place, known as *numerus clausus*, which is based on academic performance. As such, there has been a "downward shift" with an increasing tendency for students graduating with the *Abitur* to enter an apprenticeship program instead of studying at a university. This trend has led to a displacement of students with diplomas from *Realschulen* or *Hauptschulen*, particularly from the more desirable apprenticeship fields, such as banking and insurance.

Continuing Vocational Training

Continuing Vocational Training is, according to Coffey and Rhodes¹⁷, characterized by:

- A division of responsibilities between federal and Lander (equivalent of provincial) governments;
- Pluralism of providers;
- Market allocation;
- A subordinate role of the state;
- A diversity of formal courses; and
- Selection based upon training and work experience pre-requisites.

Some additional characteristics of and issues with the German Continuing Vocational Training system are discussed below:

1. Once having become certified in a particular field, it is difficult to change professions.

In many cases, this would involve starting over and completing another training program. Teachers, parents, and students indicated that the "inflexibility" of the German labor market is presently an issue of great concern.

2. The German education system is very rigid, and credentialed, and there is a strong incentive for young people to make vocational decisions early and stick to them.

To some extent in Canada and the United States America, a student can take a test to qualify him or herself or to for example receive an exemption or advance standing in a program. It is not necessary to provide proof of achievement or other qualifications in order to take this test. This is not possible in Germany. In Germany, one must first have

¹⁷ Michael Coffey and Carl Rhodes, Structure and funding of vocational education and training in the United Kingdom, Ireland, France and Germany, UTS Research Centre Vocational Education and Training, Working Paper RP 114 02-03

studied [at the university] in order to take the exam. And you cannot study unless you have the *Abitur*. And you cannot attend an upper-level trade school unless you have a *Realschule* (middle-level certification). Accordingly, a “brutal” reality is that if one misses a qualification at age 15 or 16, for whatever reasons, then in principle it is missed for life. On the other hand, the person who gets through this system has achieved something.

Notwithstanding the above, Secondary school students are starting to have alternative pathways to the *Abitur*, as do adults who choose to go back to evening school to earn the *Abitur*. The vocational *Gymnasium* is one example of an alternative route to the *Abitur*. Students at the vocational *Gymnasium* earn the *Abitur*, while simultaneously taking courses in a vocational area. In fact, several 12th-grade vocational *Gymnasium* students mentioned that the vocational *Gymnasium* has the reputation for being an easier route to the *Abitur* than the traditional *Gymnasium*, a statement that was reiterated by teachers at the same school. In addition, for the dedicated student or professional who wishes to switch academic paths or change careers. Alternative forms of higher education exist alongside the German universities. Many technical subjects are taught in “technical colleges” (*Fachhochschulen*). Private colleges also exist, usually specializing in one or several related areas of expertise, although private academic institutions are by no means widespread.

3. There is a vast array of service providers.

This makes it difficult to collect statistics and make comparisons of material learned.

Funding

In the “Dual” system, referenced above, training is financed by individual companies or industries. Industry decides on the training needs and occupations to be emphasized. Pre-payments are typically made to training institutes that will provide the service.

Apprentices provide some indirect funding via the form of the opportunity cost of lost income. In some cases, the state bears costs by covering those costs associated with new programs.

Overall, private businesses are the largest investors in continuing vocational training. Only a fraction of costs is covered in the fees paid by individuals, as the balance is state-funded through taxes and levies and the European Social Fund (ESF).

Advantages and Disadvantages

The system produces high status for vocational qualifications.¹⁸ An apprenticeship remains the first choice for most of the school leavers. The combination of on-the-job practical training under a

¹⁸ <http://www.cabinet-office.gov.uk/innovation/2001/workforce/report/a9.html>

qualified Meister and off-the-job theoretical training in college has provided Germany with the highest level of intermediate skills in the advanced countries. Over half the working population in Germany (50.6%) in 1997 had a “level 3” qualification as their highest qualification compared with 18% in the UK and 9.2% in Singapore.¹⁹

The very strength of the German system, namely its institutionally dense framework, means that many parties have to be in agreement with any changes and this has resulted in a slow response to the challenges of globalization.²⁰

D. Ireland²¹

Current vocational training policies in Ireland reflect a response to the country’s poor economic situation in the 1980s and 1990s, characterized by low growth and high unemployment. To deal with these issues a three-fronted approach was developed that reflected the view that the government, business and individuals should act as “social partners” in fostering increased competitiveness. Accordingly, VET policy also reflected responsiveness to the social consequences of high unemployment. The result, according to Coffey and Rhodes²² has been a high level of public investment in VET programs and employment programs for the unemployed. Less emphasis was given to continuing training of employees. In more recent years, this has started to change as the Irish economy has started to recover.

The European Union has also played a major role in training in Ireland. It supported Ireland’s investment in human resources and community support framework during the period 1994 to 1999. This support was in the form of contributions to the funding of training and educational programs and input to the development of the administration system. As a result, a more formal monitoring structure has been established to oversee expenditures, quality and outcomes and to report to stakeholders including businesses, unions, other interested groups and the European Commission.

Programs

1. Initial Vocational Training

In terms of Initial Vocational Training, there is no single system in Ireland. A range of organizations provide formal training for young people after their compulsory schooling. These organizations can be classified into three broad categories:

¹⁹ Ibid

²⁰ Ibid

²¹ Michael Coffey and Carl Rhodes, Structure and funding of vocational education and training in the United Kingdom, Ireland, France and Germany, UTS Research Centre Vocational Education and Training, Working Paper RP 114 02-03

²² Ibid

Programs at Tertiary Schools or Colleges – Under the responsibility of the Ministry of Education and Science, these include programs at high school that provide alternatives to the traditional education and provide preparation for work, rather than tertiary education. Tertiary colleges provide a wide range of vocational training programs in response to the new industries in Ireland such as information and computer technology as well as secretarial and business skills.

Apprenticeships – are managed by the FAS (Training and Employment Authority) in cooperation with the Ministry of Education and Science and other stakeholders. Apprenticeships are primarily found in a limited number of industrial sectors, such as construction and automotives and participants receive a wage during their training.

Other Training Programs – such as “Youth Reach” and agricultural programs, are under the responsibility of various other government departments. The programs have been developed according to the specific needs and context of the Irish economy in expanding business areas such as tourism and early school leavers.

2. Training for Employed People

Most Continuing Vocational Training is funded directly by individual businesses with little involvement of the state. The training is either generic (finance or marketing, for example) or company specific. Most training takes place at company sites and is out-sourced to private training companies or public training bodies.

3. Training for Adults

This is the responsibility of the educational system, in response to individual needs. There has been a significant increase in participation, particularly in the areas of literacy and communication.

4. Training for the Unemployed

This is the responsibility of the Department of Enterprise, Trade and Employment, through the Training Employment Authority (FAS). Courses are short-term in nature, with costs covered by the FAS.

Funding

1. Initial Vocational Training

There is widespread support for the view that Initial Vocational Training should be paid for or provided by the government with no cost to the participant. However, there is considerable controversy regarding:

- Whether participants should receive income support while in training; and
- Who should fund the system - which at present is funded by government, including the European Social Fund (ESF), and levies on businesses.

The state, in conjunction with the ESF, is the major funding provider for most IVT. Schools are required to generate additional funding from local individuals and businesses and through other fundraising activities. Funding for apprenticeships comes from the state and EFS, industry and the individual (by accepting a lower wage). While at college, apprentices are paid wages by the employer at by the state through a .25% payroll levy. In 2000, the apprenticeship levy was replaced by a broader training fund. Spending on IVT has increased in the 1990s as more young people stay at school, and as the number of apprentices has risen rapidly with the country's strong economy.

2. Continuing Vocational Training

The majority of CVT for employed people is, as noted above, funded by industry with little involvement of the state, although a few new select, targeted and/or conditional sources of funding from government are starting to be introduced.

3. Training for the Unemployed

This is a state responsibility, in conjunction with the ESF.

E. Comparative Analysis and Discussion

Each of the four countries in this section had different methods for managing the governance, provision and funding of vocational education training. The differences occurred in terms of total expenditure, distribution of expenditure across sub-sectors, the level of government involvement and the relative “centralization” of government involvement. According to Coffey and Rhodes ²³, a number of select factors are presented and discussed below:

- Each of the four countries invested heavily in the VET sector, with more than 2% of GDP.
- There is considerable difference in the distribution of funding between public and private sources. The respective public/private splits range from lows of approximately 30% public for the United Kingdom and Germany to highs of approximately 67% and almost 100% in the case of France.

²³ Ibid

- There are differences in the allocation of funding between the areas of VET: Initial Vocational Training (IVT); Continuing Vocational Training (CVT); and Training for the Unemployed (TUP).
- For IVT there is considerable difference in the distribution of funding between public and private sources, according to the economic and political circumstances of the preceding four countries. The public/private splits range from lows of approximately 20% public for Germany to highs of almost 100% in the case of Ireland.
- For CVT the respective public/private splits range from lows of approximately 10% public for Germany to highs of approximately 77% in the case of Ireland.
- The majority of funding, in each of the preceding four countries was provided by government.

The preceding factors are summarized in the following table.

Select Characteristics of Vocational Training Programs

Factor/Country	United Kingdom	France	Germany	Ireland
Total VET Funding as a % of GDP	2.1%	2.8%	3.0%	3.5% ¹
Public Funding	28%	67%	30%	99%
Private Funding	72%	33%	70%	1%
IVT Funding (% of total)	19%	51%	46%	71%
CVT Funding (% of total)	77%	36%	37%	6%
TUP Funding (% of total)	4%	13%	17%	23%
Source of IVT Funding (%)				
Public	78%	80%	20%	99%
Private	22%	20%	80%	1%
Source of CVT Funding (%)				
Public	12%	42%	10%	27%
Private	88%	58%	90%	73%
Source of TUP Funding (%)				
Public	100%	100%	100%	100%
Private	0%	0%	0%	0%

1. The relatively high levels of expenditure in Ireland reflect large contributions from the ESF to combat unemployment during the 1980s and 1990s.

II. Other Models

As noted in the introduction, this section contains an overview and discussion of the models for the funding of VET in Singapore, the United States and Denmark, as well as changes that will take effect in British Columbia on April 1, 2003.

In reviewing the discussion that follows, a simplistic but useful approach is to think of the USA and Singapore towards the extremes of a continuum ranging from market driven to state controlled. The other countries covered sit in between, with the UK closest to the US model.

A. The Singapore Approach²⁴

Singapore is a relatively small “island state” south of Malaysia with a population of approximately 3 million. Since obtaining its independence from Great Britain in 1959, the country has earned a reputation as one of the “economic tigers of Asia”.

In the Singaporean approach, the operation of the labour market is heavily influenced by government co-ordination of the demand for and supply of skills according to a broad objective or visions of where the country is heading, the type of industries desired to attract and develop: these include petroleum, bio-technology and electronics. Knowledge derived from employers about their immediate skill demands to identify national skill needs is also used to speed up the process of adjustment.

Once identified, the information on the country’s skill needs is provided to the Council for Professional and Technical Education (CPTe). The CPTe also receives information from employers on their skill demands and from education and training institutions on the current supply of skills. Academics provide projections on future demand. This input is then used to inform decision makers about the supply of skills, both for those entering the labour market and those already in the labour market. Any shortfall in supply that cannot be met from internal adjustments is filled by immigration. The process is overseen by the Ministry for Trade and Industry.

The system works by supplementing the market. Employers still send out signals through the price mechanism when they encounter shortages and want the market to respond. These operate in the same way as they do in the US and UK. However, the government has access to information on the future direction of the economy, which neither the employers nor the parents have. It uses this to influence the output of the educational system and to encourage employers to help prepare the labour force with the requisite skills required for the next phase of economic growth.

²⁴ <http://www.cabinet-office.gov.uk/innovation/2001/workforce/report/a9.html>

The government then is able to influence the process of skill formation in a number of ways. Through its vision, it attempts to shape the cultural attitude toward training and workforce development. Training has a focus on human development rather than alleviating unemployment²⁵. Secondly, through its control over the education system, both academic and technical, it can influence the supply of skills flowing into the labour market²⁶.

Through the Productivity and Standards Board (PSB) the government also influences the training of those workers already in the labour market.

All "levers" are used to ensure that the supply of skills not only matches current demand but also prepares for future demand. This has enabled the avoidance of serious skill shortages and facilitated rapid economic growth over a period of thirty years. The market still operates but within a framework in which the government influences both the demand for skills and the supply of skills.

Advantages

This "shaping" of the market has helped speed up the adjustment of the education and training system to the immediate and medium term demands from the economy. First, it means that there are fewer skill shortages as the skills are in place when the demand increases. Second, all schemes are delivered through employers who are thereby encouraged to take ownership of them. Third, the system has been successful in raising the average level of investment by employers in training and development activities from 1% of payroll in 1989 to 4% in 2000²⁷. This is a much higher level than has been reported for the US, 1% of payroll on average and the Netherlands, 1.7% on average²⁸.

Disadvantages

The disadvantages centre on the difficulties of securing employer buy-in to the schemes. Also there is a danger that if the "wrong" industries are targeted through the trade and industry policy then there will be a knock on effect in the delivery of skills. However, this danger has been minimized by the constant dialogue between the Economic Development Board, which operationalizes the trade and industry policy and the other government departments responsible for skills supply. A more serious problem for a larger country would be the danger of inflexibility in the education and training system that stems from tight central control.

²⁵ <http://www.cabinet-office.gov.uk/innovation/2001/workforce/report/a9.html>

²⁶ Ibid

²⁷ Ibid

²⁸ Ibid

B. The USA Approach^{29 30}

The National Apprenticeship System is authorized by the [National Apprenticeship Act](#). The Act directed the Secretary of Labor to establish labor standards to guard the welfare of apprentices, to cooperate with the States in the promotion of such standards and to engage in the promotion and adoption of those standards by industry in apprenticeship programs. The Federal Committee on Registered Apprenticeship (FCRA), composed of employer, labor, and public representatives advises the Secretary of Labor on apprenticeship and training matters.

The [apprenticeship standards](#) are administered by the U.S. Department of Labor's Bureau of Apprenticeship and Training and recognized State Apprenticeship Councils or Agencies which prescribe the requirements for "registration" Credentialing through registration is particularly important to the individual who may then demonstrate completion of a bona-fide apprenticeship and attainment of recognized skilled or journey worker status. Government does not conduct the training for others. However, it operates apprenticeship programs as an employer in a number of civilian agencies and the military. Apprenticeship staff located in 110 offices nationwide, working with State Apprenticeship Councils or Agencies in 27 States, the District of Columbia, Puerto Rico, the Virgin Islands, and State Labor Commissioners, assist in establishing, servicing, and monitoring registered apprenticeship programs. In addition, Federal and State vocational education may provide resources for a portion of the related technical instruction.

The US approach is one where the principal mechanism for skill formation is the market³¹, which is relied upon to adjust the demand and supply of skills and to determine the stock of skills. Employers encounter shortages for skills and send out a signal to the market by increasing the price they pay for skills in short supply. Parents respond by encouraging their children to pursue appropriate training and they also pressure schools and colleges to provide appropriate courses. Those in the labour market respond by investing in their own skill development. The employers provide company specific job skills.

In an economy the size of the USA, characterized by a central (Federal) government with relatively weak internal political power and confronted by individual states which jealously guard their own autonomy, the role of the state has been confined to ensuring the right conditions for the delivery of education, as a "public good". Otherwise, the government restricts its interventions to instances of market failure such as the provision of training for the unemployed and disadvantaged minority groups through activation policies. In these circumstances, publicly funded training becomes associated with unemployment. Unions are weak at the political level and their influence in the workplace is confined to a limited number of industries.

The only point where the Federal government can influence the supply of intermediate level skills, and where it has been active, is in helping increase the responsiveness of the tertiary sector,

²⁹ http://www.doleta.gov/atels_bat/nas.asp

³⁰ <http://www.cabinet-office.gov.uk/innovation/2001/workforce/report/a9.html>

³¹ Ibid

especially the community colleges, to meet the skill needs of local employers. Otherwise the responsibility for delivering training is that of the employer and the individual, with employers being used to identify the national skill needs.

Advantages

The market has provided an efficient means of coordinating the process of skill formation and worked well in providing a large flow of well-educated young people into the labour market. In addition, the flexibility of American tertiary institutions has succeeded in providing opportunities for individuals to re-enter education later in life to upgrade their skills. This has created a stock of well-qualified adults.

There are many innovative practices in the Community Colleges. When they work well they are very flexible at the local level and provide excellent training tightly geared to the requirements of employers and the local labour market.

Disadvantages

There are two problems with using the market. First it can be slow to operate. Left to its own devices, the market signals take time before they produce changes in the educational structure. In the case of tertiary education some of the delay has been circumvented through mechanisms such as Partnerships whereby employers and educationalists collaborate in designing the curriculum. Second, it only responds to the immediate needs of the employers. The longer term needs of the economy as a whole tend to be ignored.

The quality of the Community college responses is variable because the federal government does not directly control colleges. Local control means that some are very good while others are very bad. Similarly with the One-stop-shop or career connect, some are excellent and innovative, others weak. While the United States offers its upper secondary students a wide range of educational opportunities (including academic and vocational courses), it does not have a comprehensive strategy or set of programs to facilitate students' transition from school to work.

C. The Danish Approach ^{32 33}

Denmark is a small country with a surface area of 43,000 square kilometres (excluding Greenland and the Faroe Islands). With a total population of 5.2 million inhabitants, the country is densely populated. The major part of the population lives in towns or cities, only 15 % live in rural areas. In contrast to many other countries, Denmark's population is homogeneous; only 4.5 % of the population has a foreign background, many of them come from one of the other Nordic countries.

³² <http://www.pub.uvm.dk/2000/newstructure>

³³ <http://www.cabinet-office.gov.uk/innovation/2001/workforce/report/a9.html>

Denmark is characterized by high levels of training and workplace learning, a significant achievement for an economy dominated by SMEs.

The Danish vocational education and training (VET) system is more than 450 years old and can be described as a cultural bridgehead between the European (German) dual apprenticeship systems and the school-based models of the Nordic countries. There is more theoretical teaching in the Danish VET system than in German VET programs, and conversely far more practical in-company training than in the Swedish system.

One of the main reasons for the strong commitment of employers and trade unions to training is the unique characteristics of Danish enterprises. In Denmark, an enterprise consists of a number of mini-enterprises and within each of these mini-enterprises “skilled workers” have considerable power and autonomy over their workplace, which reduces the need for administrators and technicians. It is argued that this is one of the reasons why Danish enterprises are so competitive. Unlike Germany, the Danes also have a tradition of continuing adult and vocational training on which the government is building a national system of lifelong learning. Underpinning the Danish system is a high degree of trust between unions and employers.

The Danish system of vocational education and training (VET) is highly centralized system. Standards are determined by the Ministry of Education in the form of regulations. These regulations are prepared by the social partners, and subsequently approved by the Ministry of Education. There is no regional level within the VET system, only the national and local level. There are 115 vocational colleges (technical and commercial) in the Danish VET system for which the Ministry of Education is responsible.

The VET system features three main characteristics:

- It is based on alternating periods of school education and practical training in a company. In general, vocational training does not take any longer than four years. Students normally attend vocational college for a maximum of 80 weeks. A young person spends two-thirds of his/her training period in one or more company/ies that have been approved by the Trade Committee responsible as training companies (approximately 20% of all companies are approved as training enterprises). Before the practical training starts, the student is required to sign an apprenticeship contract with the respective company.
- The training does not only convey vocational and technical skills within a strictly professional context, but also inter-professional and general knowledge. General education accounts for approximately 33% of the training period while a number of optional disciplines make up about one sixth.
- Moreover, the system is sufficiently flexible to provide various access opportunities and allows for changing from one level of education to another.

Many protagonists are involved in the VET system - companies, the social partners, the government, colleges and teachers - and share a joint responsibility and cooperate in order to ensure continuous innovation of the system. The national and local procedures ensure consensus building among the protagonists. At the same time, the structure is extremely dynamic, as many reforms over the past 20 years have demonstrated.

Curriculum Development

Players

There is a systematic cooperation between local businesses, education institutions, associations, local authorities and state supervisory bodies; however, there is extensive autonomy of the individual vocational colleges with regard to syllabus and budget administration. The Danish Ministry of Education has a restricted role that consists of controlling by means of objectives and framework governance.

Sectoral Trade Committees, where parties are equally represented, decide on vocational training qualifications and stipulate the training conditions. A college board of governors, comprising representatives from the social partners and local authorities, appoints the head of the vocational school, monitors his/her work and approves the budget. This leads to an ongoing adaptation to the current requirements of companies. Local vocational training committees advise the vocational college and establish links with the regional job market. Competition in terms of the quality of supply is thus stimulated through budgeting and educational planning autonomy in vocational colleges, and as a result vocational colleges in Denmark have developed into technical and skill-acquiring centres which can offer services to the regional industry.

Curriculum Design Principles

Educational policy objectives and frameworks are formulated at the central level, while the decentralized level plans the content and types of education with a high degree of freedom with regard to teaching methods.

The social partners are responsible for innovation in respect of VET main specialization courses (and further training). Continuing vocational training is the area where new training needs are normally identified first and it serves as a catalyst for the formulation of new VET training courses.

The need for new or modified training programs is identified by the Trade Committees. If they conclude that there is a need for change, they must formulate recommendations with qualitative and quantitative data, e.g. on employment opportunities and availability of practical training placements in companies. If the Committee finds that changes are needed, a group (technical/professional) is established which has the task of formulating the job profile toward which the training course is aimed. Normally, representatives of leading enterprises and vocational teachers are involved in projects of this type. Often, external experts are consulted.

The second step is the formulation of educational requirements.

The decision-making process can be described as follows:

1. An executive order (a ministerial regulation) must be issued for every training course that lays down provisions on purpose, structure, aims of the course's content in relation to the classroom and practical on-the-job training etc. These orders contain all specific provisions relating to the individual course. They form a basis for the college planning and organization of teaching and allow the individual college considerable freedom. Once the VET Council has commented on the proposal for a new training order, it is submitted to the Minister of Education for consideration.
2. When the executive order has been approved by the Ministry of Education, it is submitted to the vocational colleges. On a local level, the colleges decide to what extent the particular course will actually be offered by the individual school.

Curriculum Delivery

The VET reform is very much a pedagogical reform. Many recent development projects have documented the importance of finding new ways to organize learning environments in vocational colleges. The students must be more active in their own learning processes.

It is possible to have a course based, subject based or modular approach to the organization of the curriculum. The use of modular approaches is especially supportive to this objective. Modularized structures will be created which may combine the effort to individualization with systemic coherence. Modularization allows for the accreditation of smaller, well-defined sequences of a program, thus enabling students to change track. The VET colleges will offer modules in a catalogue or a matrix so that students have the option, in principle, to compose their study menu as they see fit during their foundation program.

In the coming years, two new essential instruments will be implemented to support this pedagogic effort to focus on the student's learning at college and in the company:

- ***The personal education plan*** - All VET students are responsible to have their own education plan, which is a tool for the student to make rational use of the flexible provision structure in VET programs, as well as to formulate and to keep the attention of the student on his or her vocational and personal qualifications and goals. The drafting of the personal education plan is carried out between the individual student and the college. The initiative to formulate (and to keep updated) the personal education plans is taken by the college, typically by the so-called contact teacher. For students having signed a training contract the training company is required to take part in the formulation/revision of the education plan with a view to ensuring that the alternating learning in college and in company forms a continuum which upgrades the learning perspectives. The personal

education plan shall be accessible and open to the school and to the company, which has signed an apprenticeship contract with the student.

- **The educational portfolio (or "log-book")** - The modernized apprenticeship system implies that the apprentices in all programs are alternating between periods in a company and periods at college. The effects and results of an alternating program are very much dependent not only on the quality of the different parts but also on how these parts interact. While the personal education plan contains intended learning pathways, the educational portfolio binds together and documents the actual study sequences and learning outcomes including college examination documents as well as a description of the qualifications and competencies achieved by the student. Furthermore, the portfolio must include ministerial orders and the specific course regulation pertaining to the course as well as a copy of the apprenticeship contract. The college is responsible for handing over an educational portfolio to each student. The document is owned by the student and is only to be used during the course of the education.

Vocational School Teachers

As part of the overall reform implementation, a vast teacher training program has been developed to support the changed focus from teaching to learning. Teachers will get a new role as tutors/contact teachers and must have an overall view of the total educational offer to the students and must be capable of guiding students in their progression within individual programs. Thus, teachers also have to become learners in the coming years.

Teachers are employed directly by the VET colleges, and only then do they start their actual pedagogical teacher training at DEL, the national vocational teacher training institution. In this context, it is of paramount importance for the teachers to have extensive job experience to ensure optimum interaction between classroom-based education and on-the-job training in a company.

Discussion

The involvement of the social partners at the establishment level makes it responsive to changes in work organizations, the workers are quick to respond to the training needs required for new technology and working practices. At a national level, the success of the government in developing continuing adult education and training represents an important means of tackling the problem of how to encourage SME employees to engage in further development.³⁴

The system is adapting to the demands for the new skills but the influence of skilled workers in the system makes it difficult to further improve the system by opening up opportunities for the unskilled and semi-skilled. Any attempt to certify work-based competencies threatens the

³⁴ Ibid

dominance of the skilled workers by providing access to their ranks for the unskilled and semi-skilled.

D. British Columbia's New Approach to Industry Training and Apprenticeship ³⁵

British Columbia's system includes approximately 30,000 trainees (16,000 apprentices and 14,000 students in Entry Level Trades Training or ELTT programs) in 165 to 200 trades. There was considered to be a pressing need to re-evaluate the system because changing demographics will result in a shortage of skills: by 2010, the number of people leaving the work force will exceed those entering. It is estimated that there will be up to 700,000 job openings in the period up to 2008, and 75% of the jobs will require some form of post-secondary training, including apprenticeship. It is predicted that the construction trades will have the greatest number of openings, followed by culinary and meat cutting, electrical, mechanical, automotive and graphic arts. The potential consequences of not addressing the problem include: a limited expansion of industries; the need for employers to pay higher premiums for wages and benefits; more "job-hopping"; a stronger incentive to replace people with technology; and increased use of foreign labour.

The government conducted a core service review that led to significant changes. A political decision was made to eliminate the Industry Training and Apprenticeship Commission (ITAC) and to build a new system that capitalizes on its strengths.

The old system was government funded, administered by ITAC, time based, supply driven, and relied on public trainers such as colleges and institutions. The new system is: characterized by shared funding; administered by the Ministry and stakeholders with increased private sector participation; competency-based; sector-based, is demand driven; and will offer a choice of trainers. It is also expected to reduce the number of trades. Apprentices will be charged tuition fees.

Some potential advantages of the system include more flexible training, targeted funding to those areas in demand, shorter entry trades training programs, a greater role for the private sector, a curriculum based on competencies and national standards, and flexibility for training institutions to set tuition fees.

The Entry Level Trades Training (ELTT) program will also change. Under the new system, public institutions will continue to deliver ELTT and private trainers and industry will be encouraged to expand their involvement in training. Priority for program funding will go to sectors that need workers and where ELTT reduces the time to trade certification. Shorter ELTT programs (of four to seven months instead of the old seven to 12 months) will be developed and some will be

³⁵ Apprenticeship is the Future, Canadian Apprenticeship Forum, Conference Concurrent Session Report and Executive Summary, Vancouver, B.C., June 3-4, 2002

delivered online. Of those that now complete ELTT, 20% go on to apprenticeships, and the government hopes to increase this figure to 80%.

The proposed changes are expected to enable BC to respond more quickly to offering training for emerging occupations. Training will be linked to work place technologies and work place delivery. Just in Time and customized training will be offered where sectoral or cross industry needs warrant public funding of training. Training standards and credentials will also be linked to post-secondary credentials.

The roles of various stakeholders will also change. Government will be responsible for working with industry to establish standards and to issue credentials. Trainees will share costs of their initial training and will be responsible for career planning and training access. Employers will share the costs of training development and delivery, and they will be expected to identify training needs and fund skills upgrading for employees. Training providers will deliver training and related services with greater emphasis on workplace rather than classroom delivery.

Services will be maintained for the current fiscal year (2003) when the new model will be fully operational. Ten ITAC offices have been closed.

III. Conclusions and Implications for Alberta and Clearinghouse Colleges

The preceding discussion has provided an overview of how vocational training is handled in a number of other jurisdictions worldwide. Australia has also initiated reforms that were beyond the scope of the report's time frames. To a large extent, the Apprenticeship Branch of Alberta Learning has kept abreast of developments in other jurisdictions and utilized certain components and "best practices" of other systems to develop a system that meets the needs of Alberta's industry and other stakeholders. While individual colleges do not have a great deal of scope to initiate changes to the existing system, it is suggested that it may be a useful exercise to review some of the other systems (including the discussion of the United Kingdom's NVQ system in Appendix 2), and their advantages and disadvantages, in greater detail to determine whether there may be selected components that might be transferable, or "lessons learned" that may help to strengthen delivery of apprenticeship training at the local level. Perhaps with the passage of time, certain local ideas and practices may be introduced into the provincial and national apprenticeship systems if benefits, results and /or reasons are appropriately recorded.

Chapter 7 **Enhancing Inter-Provincial Mobility of Apprentices**

This chapter provides an analysis of issues and ways and means of enhancing mobility of apprentices. In so doing, given the clientele of the Clearinghouse colleges, (which can frequently include a high proportion of students engaged in academic upgrading in addition to apprentices or those engaged in apprenticeship training), it assesses mobility from four perspectives that cover the complete cycle or system leading to employment as a journeyman:

1. Mobility in deciding on a career or apprenticeship;
2. Mobility in obtaining an apprenticeship;
3. Mobility in taking classroom training; and
4. Mobility in Securing Employment.

For each of the four aspects of mobility, some of the issues, problems and steps that have been taken so far are discussed below.

I. Mobility in Deciding Upon a Career or Apprenticeship

High school students and young people in Alberta and Canada are faced with a wide variety of career choices today, yet the obtainment of a credential or entry into a career is not a guarantee to future well-being, security and happiness. The complexity of choices, rapid change and economic uncertainty make it more important than ever for students to have accurate, up-to-date and balanced information to plan and make career choices.

There is a wide array of potential sources of information. Some of the major sources are listed below.³⁶

- Human Resources Development Canada;
- Human Resource Centres of Canada (HRCC);
- Canada Career Consortium (CCC);
- The Canada Career Information Partnership (CCIP);
- Canada WorkInfoNet;
- Canadian Career Information Association (CCIA);
- Canadian Labour and Business Centre (CLBC) (formerly the Canadian Labour Market and Productivity Centre (CLMPC));
- Community Futures Development Corporations;
- The ALIS (Alberta Learning Information Services) web site;
- Conference Board of Canada; and
- Catalogues.

³⁶ www.makingcareersense.org/APPEND/App-a.htm

In addition, career decisions are typically also made based upon influences of parents, family, friends, guidance counselors, community business leaders or other role models. For many young people, the preceding sources of information can be overwhelming without the assistance of an adult or professional facilitator.

II. Mobility in Obtaining an Apprenticeship

Having developed some sense of career direction, two barriers to securing an apprenticeship are: 1) ensuring that the necessary entrance requirements have been met; and 2) obtaining the sponsorship of an employer.

A. Meeting Entrance Requirements

At present, the entrance requirements for an apprenticeship are not standardized across Canada, as the following HRDC table for the Welding trade demonstrates.

Welding Apprenticeship Entry Requirements Across Canada

Newfoundland	Grade 12 or equivalent or entrance assessment.
Nova Scotia	Grade 12 or equivalent. Nova Scotia has 3 levels of Welder Certification, 'C', 'B' and 'A' but only one Apprenticeship Program. 'A' is the highest level and requires 'C' and 'B' Certificates as a pre-requisite. Practical examinations within each level are conducted through Department of Labour or Training Institution.
Prince Edward Island	Grade 12 or equivalent.
New Brunswick	Grade 12. A High School Diploma or an Adult High School Diploma or a G.E.D. Certificate of High School Equivalency.
Quebec	Not Available
Ontario	Not Available
Manitoba	Moving to Senior 4 (Grade 12) or equivalent at the discretion of the Director.
Saskatchewan	Saskatchewan Grade 10 or equivalent as approved by Director.
Alberta	Alberta Grade 9 or equivalent or pass an entrance examination.
Northwest Territories	Pass entrance examination 'C' (equivalent to Grade 10 with Math 13). Technical Training obtained in Alberta.
British Columbia	An entrance assessment process to ensure academic readiness is in place for all trades and occupations. Secondary school students are encouraged to complete Grade 12 with appropriate English, and Applied Mathematics and Science courses.
Yukon	Grade 10 Academic Math and English. Technical Training obtained in Alberta.
Nunavut	Not Available

While the above table is illustrative (and Alberta has the lowest entrance requirements for the particular example), these differences in general can cause a number of problems, particularly when there is a trend for workers to migrate to portions of the country where the economy is stronger, as is the case for Alberta at present. Firstly, the lack of consistency can create difficulties for apprentices to ensure that they have the necessary requirements. There may be roles for Clearinghouse system colleges to act as a focal point to ensure that the requirements are well understood by their local constituents. At the national level, it will be important to make sure that entrance requirements are well known and understood so that prospective apprentices can relocate without the need for remedial training.

B. Securing Sponsorship

For many young people, the task of securing sponsorship is daunting. They tend to lack communication, and other essential skills, and confidence to contact prospective employers and endure interview or screening processes. Pre-employment or essential skills initiatives discussed in Chapter 4 contain components to address these communication and confidence issues; however, for residents of northern Alberta communities, where there may be significant cultural differences there may be a need for additional customized assistance, such as interview preparation or resume writing, or locating and contacting potential employers.

III. Mobility in Taking Classroom/Technical Training

As noted in Chapter 2, approximately 20% of the time required to complete an apprenticeship is dedicated to “classroom” training as opposed to “on-the-job” experience. For most apprenticeships, these classroom periods are typically in blocks of up to eight weeks per year at a training institute (a table detailing the training institutes and numbers of students was presented in Chapter 2).

According to Apprenticeship Branch staff, most apprentices prefer the “block of time” approach and some tend to learn better under such conditions, perhaps as the longer duration allows time to “adjust” to a classroom setting. However, the approach does have some drawbacks. In particular:

- The employer loses a part of the company’s work force for a protracted period of time. This can be particularly problematic in Alberta’s currently strong economy, where there is an acute shortage of labour.
- In some instances in the past, the time that apprentices and employers have been apart has been long enough that employers have lost apprentices as the students have fostered additional or alternate contacts and found alternate employment in larger urban areas (Calgary).
- For the apprentice, this period results in a loss of income as well as the added cost and inconvenience of finding temporary accommodation for an awkward length of

time (two months). This is likely to be a serious problem if housing shortages in Edmonton and Calgary (where most training is taken at NAIT and SAIT) continue.

- For some apprentices, it becomes a stressful period in a “foreign culture” away from parents, family and friends.

To address some of the above issues, a number of alternatives for the delivery of training have been developed and evaluated. Some involve, a traditional “correspondence” approach, others integrate recent technology developments to facilitate an on-line approach and others involve changes to the scheduling of classroom sessions whereby shorter, but more classroom periods spread out over the course of a year. Some specific examples of each approach, along with an analysis in the context of applicability for northern Alberta colleges, are presented below.

A. Distance Approaches

1. Individual Learning Modules

Individual Learning Modules (ILMs) are increasingly being developed for trades, as part of the CBAT alternate method discussed in Chapter 5. They help make the delivery of technical training more flexible, which is a priority for the Apprenticeship Board. During 2001, ILMs were completed for four trades – automotive service technician, heavy equipment technician, millwright and machinist. These modules were delivered for the 2001-2002 school year. ILMs for the welder and electrician trades are well underway, and those for the carpenter and plumber trades have been initiated.

2. On-Line Training

At NAIT, funding was recently provided by the government of Alberta to develop on-line programs for electrician, welding and carpentry apprenticeships.

The electrical program, which is more academic, lends itself well to such a mode of delivery. Each year, the government of Alberta assigns a certain number of “seats” for each apprenticeship program. In the most recent year, 100 were made available for the electrical program. Students interested in the mode of delivery were first interviewed to assess suitability for the method and secondly, were required to sign a “learning contract”.

Distance students are given a longer period of time to complete the material (for example they have six months to complete an otherwise 18 week course). Start times are flexible, but a commitment is made to be finished before the end of the academic year. Exams are supervised by career development centers, education consortiums, industry or other educational institutions, while all lab and hands on components are done at NAIT. Space in labs can be booked by telephone. Costs of the program are considered to be comparable to “traditional” program delivery.

The mode of delivery has the advantage of being flexible enough to be from any point. At present, students from other provinces and countries are not eligible for the method, however, Alberta residents who have moved to other locations may continue with the online program. At present, there are students in Nunavut, British Columbia, the Yukon, United States and Cuba.

Other advantages of the method include:

1. To some extent, students can learn at their own pace.
2. Students can remain employed or working and do not have to bear the costs of residing in Edmonton for a protracted period of time.
3. It can help to result in better use of lab facilities as all training is not concentrated (on the other hand, this can result in some scheduling difficulties).
4. Students have an added benefit of becoming more comfortable with other leading edge technologies.
5. It may be possible to extend the method to other jurisdictions, with could result in economies of scale, greater coordination of resources and greater mobility of trained personnel as a result of a more common curriculum.
6. It may be possible for training institutes to have a broader student reach, resulting in greater revenues or lower per student costs.

An apparent disadvantage of Distance Delivery methods is that students have markedly lower pass and completion rates. It is thought that issues associated with discipline or study habits may be prime causes. For some northern students these problems may be exacerbated due to cultural and learning style differences.

B. Changes to Scheduling of Classroom Sessions

The province of Alberta has experimented with alternate approaches to classroom training whereby students take their technical training over longer periods of time but attend classes only one or two days a week.

As an example, an innovative program for chefs and cooks, designed in cooperation with restaurateurs and the Alberta Apprenticeship Board, allows students to attend training classes once a week at Lethbridge Community College. In the program, 30 students, 10 in each of three levels, attend classes on one of three days per week. Students accumulate 40 days of training in all. To accommodate the weekly students, the College converted its apprenticeship curriculum to a module format and delivers self marking tests via a web -based testing platform, which allows students to review their lessons when not in attendance at the College. The program also means that students can attend classes, keep their jobs and not have to relocate. Some students work in the campus cafeteria, which allows some cost recovery for the program. There are student tutorials for each module and the instructor can be reached by e-mail in the event that it is not possible to attend classes.

In evaluating such approaches, Apprenticeship Branch staff found that pass rates were lower than average (please reference Chapter 5 for more details). Lack of dedicated study time may be an underlying cause.

C. Prior Learning Assessments

In recent years, the Apprenticeship Branch has increased its resources to be able to review the credentials and prior learning of those in apprenticeship programs. This is a fairly time consuming case by case process; however, it is deemed to be desirable given the existing and expected skills shortages and the need to be able to utilize workers trained in other jurisdictions, or those who may have acquired comparable “on the job “ learning.

IV. Mobility in Securing Subsequent Employment

For a country such as Canada, with its size and diversity, range of jurisdictions for labour, and ebbing and waning centers of economic strength and forecast shortages of skilled labour, it will be vital for trades people to have the maximum flexibility to move from region to region and project to project according to needs. Yet, there are considerable differences in the requirements and standards between provinces for full certification. These differences become clearer in the review of Ellis Charts.³⁷

The Ellis is a comparative chart of apprentice training programs across Canada produced by Human Resources Development Canada (HRDC) in partnership with the Canadian Council of Directors of Apprenticeship (CCDA). It is the only document of its kind in Canada that allows an interprovincial overview of the 13 Canadian apprenticeship systems. It represents a key product that provides governments, industry and educational institutions with data on more than 200 designated trades, more specifically on training, certification, education/entrance requirements and prior learning assessment and accreditation process. For illustration, an Ellis Chart for welders is below.

Ellis Chart for Welders

	NL	NS	PEI	NB	QC	ON	MB	SK	AB	NWT	BC	YT	NU
Part A - General Information													
Journey person Certification Only (Yes/No)	No	No	No	No			No	No	No	No	No	No	
Apprenticeship Term - Years and Hours - Min/Max Hours	5400	6000	4500 min	3 (1800)			3 (1600)	3 (1800)	3 (1800)	3 (1800)	3 (1800)	3 (1800)	

³⁷ www.ellischart.ca/welcome.html

	NL	NS	PEI	NB	QC	ON	MB	SK	AB	NWT	BC	YT	NU
Education/Entrance Requirements	See Details												
Prior Learning Assessment & Recognition (PLAR) Available (Yes/No)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
If Yes, Refer to Page Indicated	62	63	63	63			67	67	68	70	71	72	
Apprenticeship Accreditation Process Available (Yes/No)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
If Yes, Refer to Page Indicated	76	78	75	75			81	75	84	75	75	75	
Apprenticeship Technical Training Required (Yes/No)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Training Delivery Methods - Block Release (BR); Individualized (I); Both (B)	I	BR	I	I			BR	BR	B	B	I	B	
If block release :	No. of Periods and Total Weeks		6	3 / 15	3 / 18			3 / 24	3 / 22	3 / 24	3 / 24	4 / 24	3 / 24
	Total Theory Hours		192					420	201	288	288	200	288
	Total Shop/Lab Hours							420	625	432	432	520	432
If Individualized : / (Mark an 'X' beside all that apply)	Total Hours	1575		450	720					720	720	720	720
	Day/Hour Release												
	Fixed Entry/Open Exit	X		X	X					X	X	X	X
	Flexible/Distance Education									X			
	Other	X											
Pre-Employment Training - Compulsory (C); Voluntary (V); Not Available (NA)	V	V	V	V			V	V	V	V	V	NA	
Train-the-Trainer Program for Journeypersons Supervising Apprentices (Yes/No)	No	No	No	No			No	No	No	No	Yes	Yes	
Ratio – Journeyperson/Apprentice – Indicate Actual Ratio or Variable (V)	1:1	1:1	1:1	1:1			1:1	1:3	1:1	1:1	1:1	1:1	
Journeyperson Certification Available (Yes/No)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
If Yes, Compulsory (C) or Voluntary (V)	V	V	V	V			V	V	C	V	V	V	

	NL	NS	PEI	NB	QC	ON	MB	SK	AB	NWT	BC	YT	NU
Part B - Curriculum Resources													
Occupational Analysis - National(N); Province/Territory(P/T); Both(B);(NA)	N	N	N	N			N	N	N	N	N	N	
Province/Territory Skill Profile Chart (Yes/No)	Yes	Yes	Yes	Yes			No	No	Yes	Yes	Yes	No	
Apprenticeship Program Outline(Yes/No)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	No	
Apprentice On-The-Job Training Standards/Record Book (Yes/No)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	No	

Province/Territory Journeyman Course Outline(s) (Yes/No)	Yes	No	No	No			No	Yes	No	No	No	No	
If Yes, Upgrading (UG); Updating (UD); Both (B)	B							UG					
Modularized Learning Resource Materials (Yes/No)	Yes	No	Yes	Yes			No	No	Yes	No	Yes	No	

	NL	NS	PEI	NB	QC	ON	MB	SK	AB	NWT	BC	YT	NU
Part C - Assessment/Examination Resources													
Province/Territory In-School Level Practical Examinations (Yes/No)	Yes	No	No	No			No	No	Yes	Yes	No	Yes	
Province/Territory Level Written Examinations (Yes/No)	Yes	Yes	Yes	No			Yes	Yes	Yes	Yes	Yes	Yes	
Province/Territory Journeyman Examination(s); Written (W); Practical (P); Both (B); Not Available (NA)	P	P	P	NA			P	B	B	P	P	P	

Please note that the information provided for Saskatchewan, Ontario and the North West Territories reflects the 1999 data. Information for Nunavut is not available at this time. Information presented for every other jurisdiction dates from 2001.

To address the problems associated with the differences between provinces, two key initiatives have been implemented:

- **The Red Seal Program** - The Interprovincial Standards "Red Seal" Program, implemented in 1958, provides mobility for certified journeymen in Canada. The Canadian Council of Directors of Apprenticeship (CCDA) administers the Red Seal Program and other intergovernmental initiatives. The CCDA is an inter-jurisdictional partnership that works with industry in the development of a skilled labour force, and in the facilitation of labour mobility throughout Canada.

The program promotes and facilitates the standardization of provincial and territorial apprenticeship training, as well as the regular updating of national trades standards in order to reflect the ongoing technological changes taking place in all trades. Canada's provinces and territories developed the Red Seal program in cooperation with the federal government (Human Resources Development Canada) to standardize trade skill requirements and provide greater employment mobility throughout Canada. A provincial Certificate of Trades Qualification bearing the Red Seal provides training recognition in most jurisdictions throughout Canada. For employers in other jurisdictions, the Red Seal is an assurance of quality training and certification to nationally recognized standards.

- **The Agreement on Internal Trade** - facilitates movement of workers across Canada by accommodating individuals with credentials from other provinces and territories who do

not wish to pursue the Red Seal. To comply with the final phase of the Agreement, the Alberta Apprenticeship Board has made provision for alternate assessment processes, which in many cases involve detailed case-by-case analysis of prior learning, training and experience.

V. Implications and Future Action for Northern Colleges

- 1. It is suggested that Clearinghouse colleges take steps to ensure that they have the most recent resources available regarding career options and labour market trends, or are in a position to be able to direct students to appropriate resources.**

In addition to the resources referenced in the beginning of this chapter, staff should consider how relationships might be developed with other experts, mentors and sources of information, particularly with local role models who can “tell it like it is”. This will also ensure that the most recent information is available.

- 2. It is suggested that Clearinghouse colleges provide informal “clinics” or “information sessions” on a periodic basis, perhaps quarterly, or at the beginning and end of semesters (possibly as part of orientation sessions), that will provide students, prospective students and members of the community in general with the skills to access and use the wide variety of career information available.**

Such a proactive approach will ensure that career planning enjoys a position of prominence and will help to make students less dependent on college staff. It may also help to improve confidence in approaching prospective sponsors and writing exams. Such up-front planning may also reduce the need for and cost of other upgrading or remedial programs.

- 3. To assist students and other stakeholders to ensure that they meet entrance requirements it is suggested that coursework be developed so that it meets the highest provincial standards (and not necessarily the standards of Alberta).**

While Alberta is currently enjoying a particularly strong economy, the current situation may not always be the case. Students who can meet the requirements of the highest standards will have improved mobility and will not be burdened with the cost or other inconvenience of upgrading.

- 4. To assist students with securing sponsorship, colleges should consider (if not already done so) periodic informal sessions that will help students with resume preparation, understanding the needs of employers and job search techniques.**

Local employers might be called in, which would help to break down certain barriers that might cause students anxiety (possibly by providing contacts or explaining needs or processes). Alternatively, such skills might be included as part of “Essential Skills” programs.

- 5. In conjunction with the Apprenticeship Branch and other stakeholders, colleges should consider opportunities for alternate delivery of classroom or technical training.**

Some of the means that have already been considered from time to time as well as other potential models are discussed in Chapter 5 and Chapter 6 as well as portions of this chapter. As new, more knowledge-based trades are introduced in the future that may be more amenable to on-line or distance methods, and ways to save costs are explored, it might be possible for a particular college or institution in one province to serve the needs of multiple provinces or the entire nation.

- 6. To assist apprentices in achieving higher levels of certification such as the “Red Seal”, periodic short examination preparation sessions or seminars should be considered in conjunction with the Apprenticeship Branch and comparable offices in other provinces.**

Such sessions, which would be on a user pay basis, might be modeled on similar programs for professionals, such as Chartered Accountants. There may be a market to offer the seminars to tradesmen who come to Alberta from other provinces in seek of work.

Chapter 8 **Enhancing the Image of Apprenticeship Programs**

This chapter provides an analysis of ways and means in which the colleges in the Clearinghouse may help to enhance the image of apprenticeship programs.

I. Some Current Perceptions and Trends Toward Apprenticeships

The choice of apprenticeship does not start out on equal footing with other education and training options. To be a viable option, attitudes have to be open enough to allow objective consideration. According to several studies, young peoples' attitudes toward, and perceptions of, apprenticeship have been biased. Some of the influences and perceptions are discussed briefly below:

- Young people are influenced significantly by the experiences and attitudes of parents and guidance counselors. The parents of many of today's Alberta high school students have been affected adversely by early 1980s down turns in the economy and resulting lack of opportunities or difficulties in getting re-established. As a result, some tend not to encourage their children to go into the trades. To a great extent, (and while the situation is changing, as discussed in Section II, below), guidance counselors tend to channel "non-university bound" students into the trades, which with some of society's current values, results in a "second class" stigma.
- In some instances, the stigma note above is reinforced in that training programs do not provide students with essential skills. Setting aside the issue of "low achieving students" the nature of many of today's trades, as referenced in Chapter 3, is such that practitioners must be able to digest large amounts of technical data and communicate with many diverse groups; these "skills" are often not taught at high school – even for "academic" students – and their absence in some curriculums may be setting some apprentices up for failure. Secondly, in some instances, the methods of instruction that have been used may not recognize the unique characteristics of the trade or the learning styles or needs of students. In both cases, students may struggle resulting in negative stigmas.
- To some extent, the stakeholders, such as associations and employers, are "guilty" of not presenting a "common front" in providing current information about the opportunities in the trades such as wages, working conditions, culture and opportunities for advancement and cross-over to other careers. Many employers of trades people are small businesses resulting in a somewhat fragmented market that is exacerbated by: 1) the fact that the owners are pre-occupied with the day to day aspects of running their businesses and do not have time to participate in activities that would promote the trade or industry; and 2) many of today's owners and managers were brought up and trained in a time and a way that causes them to be uncomfortable in such roles.

While there are still perceptions of trades being involved in dirty or menial activities, many trades are evolving toward more knowledge intensity, and many new high technology, knowledge intensive occupations that did not exist say 20 years ago, are emerging. The fact that many companies involved in the trades are small enterprises with less than 10 employees, also results in a “dead end” or Joe’s Garage” mentality with many negative connotations associated with such companies. The opportunities for entrepreneurship or career advancement are not recognized or promoted.

- The trades still tend to be dominated by males and participation by other groups such as Aboriginals tends to be low. Women and minorities, have to a great extent, not been encouraged to enter them until more recently, and accurate information is not provided.
- Within the business community, there is still a perception of apprenticeship training as being a “cost” or “burden” to the company. There needs to be a paradigm shift towards the perception of “investment”, and companies must find ways and means that will provide apprentices with the proper training but use them in a manner that will be a “profit centre”.
- The way in which success is measured in the trades may not be on the same level as for “academic” programs. Until more recently, students and employers were not recognized for excellence, nor for that matter were benchmarks or standards developed.

II. Organizations and Current Steps to Improve Perceptions

While the issues and perceptions discussed above are still major problems, attitudes are changing, and information is improving. Both workers and employers in industry are recognizing the value of apprenticeship training. Several sector council human resource reports confirmed a bias of employers for training in the workplace. The 1996 Plastics Industry report reveals that 47% of production workers and a third of thermoplastic employers expressed an interest in an apprenticeship training system for production workers. "The attributes of apprenticeship that are seen as positive are: combination of work and learning; integration of on-site, practical learning with college instruction; occupational standards; and recognition of qualifications" (Canadian Plastics Industry, 1996, p. 47).

A number of efforts have been made in recent years to attract more people to the skilled trades by increasing awareness and satisfaction within the trades. Examples of some specific initiatives that have been developed in Alberta and across Canada are discussed below.

A. General Programs

1. Skills Canada

A lack of information regarding the opportunities in trades and technology prohibits many young Canadians from considering a career in skilled trades. Skills Canada is a national, not-for-profit organization, which works with employers, educators, labour groups and the government to reposition trade and technical careers as a first choice career option for Canadian youth. Its mandate is to look for ways to guide students toward the professional opportunities available in the skilled trade and technology fields. The goals of the organization are:

- To provide a unique, proven, effective and efficient program to raise awareness in the current and emerging skilled trades and technology careers, by bringing Canadian youth into a competitive spotlight. In this regard, a number of regional and national skills competitions that challenge students to do their best and can lead to participation in prestigious international events, and make these occupations more visible to teachers, students, parents and the general public, are a cornerstone of the program.
- To actively lead in developing dynamic partnerships with agencies & organizations involved in promoting current and emerging skilled trades and technologies by identifying and using best practices.

2. Career Circuit

Career Circuit is a Canada-Wide network of non-profit Youth Service Agencies, providing agency staff with free practical information, tools, resources and training to support effective career services to youth.

3. Careers: The Next Generation

In 1997, the Alberta Chamber of Resources financed the pilot stage of Careers, which had become an incorporated and non-profit organization. Its primary focus has been to help communities mobilize around youth and trades, and transferring skills from an aging population to youth. At the outset, the program was in 16 schools, mostly in one community. By 2001, the program was invited into 187 schools in 118 communities. A key part of Careers' work is to motivate youth, noting that up to two-thirds of future jobs will not require Bachelors degrees.

B. Efforts Focused Toward High School Students

1. Seminars for Guidance Counselors

In 2000, the Apprenticeship Board initiated a study to determine what apprenticeship related information, resources and support was available to high school students. The report *Helping High School Students Find Their Way in the Trades* indicated that, with more information, young

people would start their apprenticeship training earlier and feel more comfortable approaching an employer to hire them as an apprentice.

As a result, the Board piloted an information session for high school guidance counselors and other staff in the Edmonton region. The purpose was to talk with school staff about the resources available for advising students in relation to the trades. Fifty-eight school staff from 43 schools attended the sessions in November of 2001.

2. Registered Apprenticeship Program (RAP)

The Alberta Apprenticeship and Industry Training Board continues to promote RAP. Student participation has grown over the past year by 29% and over 180 Alberta high schools, 980 students and 800 employers are now in the program. According to Staff in Alberta Learning's Apprenticeship Branch, a growing number of RAP students are qualifying for Rutherford Scholarships, which is testament to attracting the best and brightest. The preceding figures contrast significantly with the modest start of the RAP program in 1992 when five students were enrolled. It is possible that the programs developed for guidance counselors, discussed above, may have helped to play a role in the growth of RAP.

C. Other Programs and Initiatives

1. Women In Trades and Technologies (WITT)

Women in Trades and Technology (WITT), a national non-profit advocacy group, is active in the encouragement, training and promotion of women in trades and technologies. A specific example is a program at Selkirk College in Creston, B.C. Women In Trades & Technology is a full time sixteen week exploratory trades/technology program that provides participants the opportunity to develop theoretical knowledge, practical hands on shop skills and professional development needed to be successful in further trades/technology training or employment. The course includes classroom lectures, laboratory, shop work, industry speakers/tours, women role models and work experience. A variety of trades will be studied including: Electrical, Auto Mechanic, Carpentry, Millwright/Machinist and Welding. Upon completion of this course participants will be able to determine their potential and suitability of each occupation to enable them to make an informed career decision

Versions of WITT such as "GETT", which are in effect "summer camps" targeted toward 12 to 13 year old girls, have also been developed.

2. Awards and Scholarships

In Alberta, a number of awards and scholarships have also been instituted to recognize excellence by all participants in the trades and technologies (students, educators and employers). Some examples include:

- *Top Apprentice Awards* – for 2000/2001, 56 awards were made to individuals in the final year of their apprenticeships in recognition of outstanding achievement:
- *RAP* – for 2000/01, based upon recommendations from an employer, supervisor or journeymen as well as academic achievement 50 RAP students received awards of \$1,000 (\$700 is awarded in their first year of technical training and \$300 in their second);
- *The Instructor Award of Excellence* – recognizing instructors (one from each of northern and southern Alberta) who demonstrate excellence in training delivery and communication with apprentices;
- *The Employer Award of Excellence* – awarded annually to the outstanding employer of apprentices;
- *Thygessen Awards* – named after Jake Thygessen, a former Board Chairman, these \$500 scholarships recognized a number of apprentices who excelled in their trade and were considered to be especially gifted and motivated; and
- *The Chairman's Award of Excellence* – which recognizes outstanding commitment to a trade and the principles of apprenticeship.

3. Canadian Apprenticeship Forum (CAF)

On January 21, 2003, the Government of Canada has announced funding of \$12 million for the Canadian Apprenticeship Forum-Forum canadien sur l'apprentissage (CAF-FCA) and Skills/Compétences Canada (S/CC) to develop and promote career options in the skilled trades and to double the number of Canadians completing apprenticeship programs within a 10-year period.

The project is a partnership between HRDC, CAF-FCA and S/CC. It is one of the major initiatives put in place to support the Government of Canada's Innovation and Learning Strategy for Canadians, which addresses the national challenge of ensuring Canadians possess the skills and knowledge required to fully participate in the knowledge-based economy. CAF-FCA and S/CC are two not-for-profit organizations that bring together key stakeholders in the apprenticeship community to promote the development of apprenticeship across Canada.

To attract more young people with mathematical, scientific and technical aptitudes into the skilled trades, the campaign will strive to change the perception of skilled trades and technologies careers in the minds of Canadian youth, their parents and other key influencers. The improved image and increased profile of skilled trades are expected to help address the issue of skills shortages, by encouraging more young people to consider careers in this segment of the labour market. The campaign will also encourage employers to accept and retrain more apprentices, so that they are better able to complete their studies.

4. Other Industry Led Initiatives

Industry strategy for promoting the trades as an attractive choice of occupation is to portray the variety and challenge of a career in the trades. Individual trades associations and unions are producing promotional material such as videos, CDs and posters for schools, and participating in “job fairs” to provide youth with up-to-date information regarding the trade including wages, working conditions, opportunities for advancement and entrepreneurship.

III. Some Potential Future Roles for Northern Colleges

Based upon the preceding analysis and discussion, it is recommended that the Colleges participating in the Clearinghouse Project consider the following for roles that they might play to help to improve the perceptions toward trades in their communities.

- 1. In conjunction with other stakeholders, the value of apprenticeships needs to be promoted better to employers. This might be accomplished by making a case for apprenticeship training and linking it to the business’s overall performance and profitability.**

Examples of how such a case might be made can be drawn from a Workplace and Employee Survey (WES) conducted by Statistics Canada. First conducted in 1999, the WES links 24,600 employees to 6,400 work locations. Firms are interviewed every four years and employees every two years. Focusing on the results for the construction and manufacturing industries, 1,000 and 1,300 firms, respectively, with respect to the number and percentage of firms that provide apprenticeship training, the factors affecting the incidence of apprenticeship training and the relationship between training and business performance, is revealing. While there are some variations from region to region, the results showed:

- 40% of manufacturing and 57% of construction firms did not provide any form of training;
- 39% of manufacturing and 23% of construction firms provided some form of training but not apprenticeship;
- 21% of manufacturing firms and 20% of construction firms provided some form of apprenticeship;
- Variation was seen depending on the number of employees in a firm, with firms of more than 100 employees having higher rates of apprenticeship training (over 50%) compared with firms of under 20 employees (between 14% and 18%). Most firms in these industries are smaller, with 70% of manufacturing firms and 93% of construction firms having fewer than 20 employees.
- Training also depended on the number of full-time technical/trades employees. 77% of firms with more than 20 employees in the full-time trades provided apprenticeship training, compared with only 14% who had five or fewer employees.
- Union status also affected a firm’s likelihood of providing training.

These indicators and statistics are useful because they help to provide a “snapshot” of the types of firms that would benefit from a targeted promotion of the importance of training and apprenticeship programs.

The WES data also can help to look at job vacancies and identify which HR practices enable some firms to avoid skills shortages. Six percent of manufacturing firms surveyed had had long-term vacancies in technical or trades areas. In contrast, most firms that offered apprenticeship training did not have long-term vacancies.

With respect to company performance, across the board, firms that provided apprenticeship training beat out other firms for indicators such as decreased unit cost, lower incidents of accidents or injuries, increased customer satisfaction, productivity, sales growth, productivity and profit.

From the results of the study, it may be possible to conclude that firms that offer apprenticeship training have a culture of training and innovation that is more likely to succeed. The research findings suggest a strong business case for apprenticeship.

2. Colleges should ensure that constituents/stakeholders have access to complete and up-to-date information related to trades.

To achieve or foster this objective, it will be necessary to consult on a regular and on-going basis with information providers such as Human Resources Development Canada, the “Apprenticeship Branch” of Alberta Learning as well as industry and trade associations and other related organizations (many of which were presented in Chapter 1) to obtain access to the most recent information and to ensure that information providers know how to use it and properly counsel students.

“Best practices” from each information source and mechanisms, perhaps such as seminars, “careers days”, or as part of courses should also be instituted to ensure that both college and high school students in respective communities know of the information and are comfortable with its use.

3. Colleges should consider how contact with local industry might be enhanced and employed to foster better perceptions.

Greater local contact might be expected to have two key benefits. Firstly, it can result in better local information that can augment some of the more “national” or “regional” information in point 1, above. Secondly, it can lead to establishment of role models with whom local students, particularly women or Aboriginal students may have a greater level of comfort.

- 4. As part of college development activities, possibilities should be explored specifically for how the community and alumni might be accessed to improve perceptions.**

For example, while a number of “institutional specific” scholarships and awards already exist, increasing the amount and numbers, particularly if they were for very specific purposes, might help to foster enthusiasm and a competitive spirit among students. Additional ways might also be developed for alumni to contribute or donate equipment or funds for specific program purposes. Both strategies, especially if coordinated with active promotion and publicity would help to strengthen ties and understandings. For employers or alumni, many of whom recognize that “something needs to be done but don’t know how or feel uncomfortable”, it may well provide an appropriate forum.

- 5. Colleges should consider undertaking a review of their programs that involve trades training to the extent that stakeholder satisfaction may be an important component to fostering a better perception.**

Using an approach such as the “Balanced Score Card”, whereby critical success factors are developed according to the mission or objectives of the training are developed, it is possible to obtain feedback from all stakeholders. Eventually such information could be utilized to develop benchmarks. For a college to be able to say “we’ve got the best program in North America” for a certain field would help to foster continuous improvement, pride and spirit and positive “word of mouth”. It may be possible to combine such reviews with work conducted periodically by the Apprenticeship Branch of Alberta Learning.

- 6. Colleges should explore additional ways and means of introducing short and medium duration (say one day up to 16 weeks) that would provide opportunities for individuals to explore aspects of trades.**

While it is noted that some “introductory courses already exist, increasingly, it appears as if a major role or niche for Clearinghouse colleges is in the development and presentation of short duration programs. Programs modeled on the WITT or GETT delivery mechanisms could be developed. If combined with other opportunities that may be available, such as eco-tourism, or sports, they may present an “enticing vacation opportunity” or way to make obtaining exposure to the trades enjoyable and within the comfort zone of participants. It may also help to utilize facilities at some colleges.

- 7. Finally, from a longer-term perspective, it is suggested that colleges explore ways and means of developing “diploma” or “degree transfer” technology courses in emerging or under-served sectors.**

While this might be a more expensive method for apprentices to obtain training (they would not be working and in class for a longer period of time), it might be a way for students to avoid some of the stigmas of trades training and emerge in a position of having an academic credential and a journeyman's certificate once the practical experience requirements for a trade were met. This model is desirable, as it would help to place the trades on an equal footing as academic programs.

Chapter 9 Equity of Tuition Fees

This chapter provides an analysis of the equity of tuition and other associated fees for apprenticeship programs.

I. Current Situation: Tuition Fees as a Percentage of Total Operating Costs

At present, there is an inequity in the proportion of program costs covered by tuition fees between “standard” college programs and apprenticeship programs. System-wide, fees for “standard” college programs cover in the order of 24% of costs, whereas tuition fees for apprenticeship programs cover only 9.5% of costs. (Some caution is necessary as the data used for the analysis is, by necessity, from two fiscal years, as noted below.) A further breakdown reveals that the figure is 7.6% for colleges in general that provide apprenticeship programs and that the situation is even worse for colleges in the Clearinghouse system in that only 4.8% to 6.4% of the costs of apprenticeship programs are covered by tuition fees.

The table below, developed in conjunction with Alberta Learning staff, provides a summary of the tuition fees and proportion of total costs that they cover for both “standard” (such as Business Administration or University Transfer) and apprenticeship programs for 2002-2003. In addition, it shows tuition fee revenues subject to the Tuition Fee Policy to Net Operating Expenditures (NOE). Both the NOE and apprenticeship figures reflect both direct and indirect expenses related to the delivery of credit programs. The operating expense figures are based upon 2000/2001, the most recent year for which full information is available.

Portion of Costs Covered by Tuition Fees (2000/ 2001)

Institution	2002-03	<u>Non-Apprent</u>	Net	Ratio of	<u>Apprenticeship</u>		Ratio of
	Standard	<u>Programs</u>			Operating	Tuition Fees	
	Tuition Fee	Tuition Fees	Expenditures	to NOE	Apprent.	Dir & Indir	to Expenses
	per Student	Subject			Fee	Expenses	
		to Policy			Revenues		
Alberta College of Art & Design	3,300	2,551,775	10,092,568	25.3%			
Bow Valley College	2,526	3,801,380	17,086,480	22.2%			
Fairview College	2,680	1,319,813	10,855,631	12.2%	268,979	4,004,522	6.7%
Grande Prairie Regional College	2,440	3,700,455	20,733,827	17.8%			
Grant MacEwan College	2,510	17,263,968	62,562,676	27.6%			
Keyano College	2,626	2,684,812	17,321,563	15.5%	165,350	3,435,502	4.8%
Lakeland College	2,860	3,671,464	18,808,185	19.5%	257,552	4,047,327	6.4%
Lethbridge Community College	2,365	9,789,439	30,969,405	31.6%	251,400	2,209,116	11.4%
Medicine Hat College	2,479	5,379,044	18,794,568	28.6%	109,504	1,223,533	8.9%
Mount Royal College	2,746	16,561,874	60,612,759	27.3%			
NorQuest College	2,520	6,480,313	23,237,001	27.9%			
Northern Lakes College	2,610	2,904,190	18,570,776	15.6%			
Olds College	3,005	2,898,291	18,801,519	15.4%	84,050	1,610,757	5.2%
Portage College	2,630	1,778,163	13,258,139	13.4%			
Red Deer College	2,460	8,103,802	27,599,805	29.4%	595,200	6,154,756	9.7%
College Total		88,888,783	369,304,902	24.1%	1,732,035	22,685,513	7.6%
NAIT	2,768	21,383,032	83,245,355	25.7%	2,874,126	28,849,446	10.0%
SAIT	2,639	18,938,000	81,664,000	23.2%	1,930,000	17,342,000	11.1%
Technical Institute Total		40,321,032	164,909,355	24.5%	4,804,126	46,191,446	10.4%
College/Tech Inst Total		129,209,815	534,214,257	24.2%	6,536,161	68,876,959	9.5%

II. Current Fees Charged for Apprenticeship Programs

A. Tuition

1. Alberta

Tuition fees for apprenticeship programs in Alberta were first implemented in 1998, coinciding with reforms for funding apprenticeship training including a withdrawal of federal funding and a generally held view that apprentices should take greater responsibility for their training.

According to Alberta Apprenticeship Branch staff, tuition fees for apprenticeship programs in Alberta have remained unchanged for the past four terms. At present, tuition fees for apprenticeship programs are \$50 per week. In addition, apprentices pay nominal amounts for other services, which are for the most part such as athletics, materials and student association membership. Given the above, the “average fees” for an eight-week session are approximately \$485.00. These amounts, for colleges and technical institutes that provide apprenticeship training, are summarized in the following table.

Fees for Eight Week Apprenticeship Programs

INSTITUTION	Registration Deposit	Tuition Fees ¹	Student Association	Activity	Athletic	Bldg Fund	Non-Instruct. Services	Material Fee	Total Fees per Apprentice
Fairview	\$50.00	\$400.00	\$21.00	\$12.00				\$50.00	\$483.00
Keyano	\$100.00	\$400.00	\$24.80		\$17.60			\$50.00	\$492.40
Lakeland	All fees due upon registration	\$400.00	\$16.00		\$11.00 (pool)		\$30.00	\$50.00	\$507.00
Lethbridge	All fees due upon registration	\$400.00	\$34.48					\$50.00	\$484.48
Medicine Hat	\$120.00	\$400.00	\$30.56			\$7.67	\$33.74	\$50.00	\$521.97
Olds	\$200.00 *50% of tuition	\$400.00						\$50.00	\$450.00
Portage	All fees due upon registration	\$400.00	\$12.00					\$50.00	\$462.00
Red Deer	\$100.00 *non refunded	\$400.00	\$30.00					\$50.00	\$480.00
N.A.I.T.	All fees due upon registration	\$400.00	\$31.30					\$50.00	\$498.30
S.A.I.T.	All fees due upon registration	\$400.00	\$26.16					\$50.00	\$476.16
Average									\$485.53

Source: Apprenticeship Branch

At present, tuition fees of \$50 per week charged for apprenticeship programs in Alberta are approximately 55% of the fees charged for regular college tuition at the above-noted colleges and technical institutes. For example, tuition fees averaged in the order of \$88 per week, or approximately \$2,650 (please reference Section I, above, for further details) for two 15-week semesters.

2. Tuition Fees in Other Canadian and United States Jurisdictions

Across Canada, tuition fees charged for apprentice programs by other jurisdictions are at present (based upon a January 2003 survey and update completed by the Apprenticeship Branch) in most cases, less than charged in Alberta. The weekly tuition fees, which range from \$15 (Saskatchewan) to \$75 (British Columbia), along with the cost of an eight-week program, are summarized in the following table.

Jurisdiction	Weekly Fee	Eight-Week Program Fee	Other Fees and Comments
British Columbia	\$75	\$600	Also: \$45 for Welder qualification and \$25 replacement Welder log book. Apprentice pays own books and tools.
Alberta	\$50	\$400	Responsible for any fees levied by colleges re: student association, lockers etc. Purchase own books and tools. If not E.I. eligible, can receive course cost (training funds) via a SDP grant. Replacement record book is \$25. Transcript copies: 1-4=\$20; 5-8=\$40; 9-12=\$60; 13-16=\$80)
Saskatchewan	\$15	\$120	May have to purchase some books. Responsible for own tools.
Manitoba	\$25	\$200	Apprentice responsible for cost of books and tools.
Ontario	Not Av	Not Av	Late certificate renewal is \$160 plus \$20 for each year you're late in renewing (compulsory trades only)
Quebec	Not Av	Not Av	Not Available
New Brunswick	\$35	\$280	Apprentice pays for books, materials and tools. Heavy duty equipment mechanic and Heavy Duty Service Tech available on day release/distance ed - \$5 per hour (normally offered 2 hrs/day 3 times per week)
Nova Scotia	\$25	\$200	Distance education/Online education is \$65 per course except Orientation course, which is free. Apprentice pays for books and tools. Transcripts are \$10. If using the "courses and units" based option, \$40 per unit.
P.E.I.	\$35	\$280	Books and materials largely provided free of charge.
Newfoundland and Labrador	\$35	\$200	No registration fee, but a required "log book" fee of \$10. Book is not replaceable. Textbooks and training materials normally provided free. IP Exam called "Certificate Exchange." Endorsements (for subcomponents in 2 trades) are \$50 for the 1st, \$0 for subsequent. NOTE: NFLD fees in Board policy not regulation due to regulation reform.
Average	\$36.88	\$295	

Note: Information for Yukon, NWT, Nunavut, Quebec and selected aspects for Ontario was not available when the survey was completed.

As a point of reference, a very limited review of apprentice tuition fees in Utah found that fees in the state were approximately 45% to 50% of fees charged for regular college programs. For example, at Salt Lake City Community College, a regular “Utah Resident” college student would pay \$US 317 for a three credit hour course; an apprentice would pay \$US 142.³⁸

B. Additional Fees

1. Accommodation/Residence Fees in Alberta

For many apprentices, an additional cost of training is accommodation during the technical training period. Generally speaking, the fees charged for “on-campus” housing are similar to those charged for regular students. These subsidized fees ranged from approximately \$28 per week to approximately \$87 per week and as such, are **not a major issue**. For selected colleges, the fees are summarized in the table below.

Selected Residence Fees

INSTITUTION	Fee	Deposit
Fairview	\$420.00+	\$150.00
Keyano	\$266.00 (single)	\$100.00
Lakeland		\$200.00
	8/wk: \$490.00 (double)	\$560.00 (single)
Medicine Hat	\$650.00 (single) \$700.00 (super single) \$550.00 (double) (+Parking/\$15.00)	
Portage	*fees currently under review \$225.00 (double) \$300.00 (single)	\$100.00 \$100.00
N.A.I.T.	No housing on campus	

2. Other Fees

In addition to fees for tuition and books and accommodation, apprentices across Canada are faced with a variety of additional fees over the course of their total training period. While apprentices are often able to collect Employment Insurance benefits during their classroom training periods, and some might argue that this presents an unfair advantage in comparison to “regular students”, it is likely appropriate to keep these fees in mind in order to present a balanced and complete understanding of the total “fee load” for apprentices.

Many of the additional fees are primarily for examinations and assessments of prior work experience and learning. These types of fees are more typical of those charged for professional

³⁸ <http://www.slcc.edu/pages/9.asp>

qualifications (beyond post secondary) and would not generally be representative of those that would be assessed on “normal” college students. While of the latter two types of fees (examinations and assessments of prior work experience and learning) have been implemented to increase the number of traders people or accelerate placement in a training program, the amounts involved can be substantial. The range of costs is from a low of less than \$100, in the case of Nova Scotia, to a high in excess of \$2,000, in the case of Alberta.

The following table provides a summary of additional fees across Canada.

Additional Fees Charged Apprentices

Jurisdiction	Regist'n Fee	Practical Exam	Qualification assessment of work exp, knowledge & skills	Re-examination	Credential Validation	Certificate without exam	Temporary Permit	IP Exam	PLAR
British Columbia	\$0.00	\$0.00	\$85 (TQ Exam)	\$85.00	\$35 to \$85	\$35.00	\$45.00	\$85.00	\$0.00
Alberta	\$25.00	Varies from \$100 to \$620 ²	\$450 for evaluation of work experience and training ³	\$100 plus practical if req'd. (certain trades only; varies \$75 to \$620)	\$60 AB, \$60 Cdn ;\$450 non Cdn.	Don't grandparent: all must pass TQ Exam	N/A	\$0 if completing apprentice, otherwise \$60	\$100 per period, plus practical if req'd. (certain trades only; varies \$75 to \$620)
Sask	\$60 apprentice fee; \$150 employer fee	\$0.00	\$250 (TQ Exam)	\$100.00	\$0.00	\$250.00	\$250.00	\$100.00	\$100.00
Manitoba	\$50.00	\$75.00	\$250 (TQ Exam)	\$75.00	\$75.00	\$50.00	\$15.00	\$75.00	\$100.00
Ontario	\$40.00	Cost recovery	\$100 (TQ Exam)	\$100.00	N/A	\$60.00	N/A	\$100.00	N/A
Quebec									
New Brunswick	\$0.00	Cost Recovery to max \$200	\$0 if an apprentice otherwise \$250	\$50.00	\$25 (out of province credential)	\$50.00	\$100.00	\$0 if completing apprentice otherwise \$250	N/A
Nova Scotia	\$0.00	Cost recovery	\$25 (TQ Exam)	\$25.00	N/A	N/A	\$0.00	\$25.00	\$0.00
P.E.I.	\$0.00	\$100-175	\$50 (TQ Exam)	\$50.00	\$0,	N/A	N/A	\$50.00	N/A
Nfld and Lab	\$0.00	Cost recovery (to college)	\$150 (TQ Exam)	\$35 for 1st, \$0 for subsequent	N/A	N/A	N/A	\$35 for an old provincial certificate.	Done through college if required. Cost determined by college

Notes:

1. Evaluation of application for examination based on Canadian credential; \$85 if application is based on work experience only or credential not Canadian.
2. Cost recovery basis.
3. No fee for theory exam (certain trades also have practical exam fees that vary from \$75 - \$620).

III. Planned Tuition Fee Increases and Other Reforms

Within Alberta, and across Canada to some extent, there is recognition of an inequity in the fees charged for apprenticeship programs and a growing view that apprentices should take greater responsibility for their training. Accordingly, a number of fee increases and other reforms are to be implemented as presented below.

A. Tuition Fee Increases in Alberta

Starting in August of 2003, tuition fees for apprenticeship programs will increase by 125% over the next three years. For classes beginning in August 2003 to July 2004, tuition fees will be \$65.65 per week (\$525 for 8 weeks of technical training). Fees will then increase as follows:

- 2004/2005 - \$81.25 per week (\$650 for 8 weeks);
- 2005/2006 - \$96.88 per week (\$775 for 8 weeks); and
- 2006/2007 - \$112.50 per week (\$900 for 8 weeks).

Thereafter, they will increase according to the Consumer Price Index.

It is expected that these increases will bring fees for apprenticeship programs more in line with regular college tuition fees (although post-secondary institutes in Alberta are restricted in the tuition fee increases that they can invoke) and will cover closer to 16% of the actual costs of the programs. There is some concern that fee increases of the magnitude proposed, might have an impact of decreasing enrolment levels in apprenticeship programs.

B. Other Reforms

There appears to be fairly general agreement that fees should proceed toward covering a greater portion of costs and that apprenticeship students should be taking a greater level of responsibility for their training. For example, in British Columbia, where a new system has replaced the old ITAC (please reference Chapter 6 for further details), *“Trainees will share costs of their initial training and will be responsible for career planning and training access”*. Ontario is also considering reforms that would entail charging tuition fees for apprentices and calling upon industry to play a larger role in apprentice training.³⁹

³⁹ <http://www.edu.gov.on.ca/eng/document/nr/98.01/apprbg6.html>

IV. Implications and Future Action for Northern Colleges

The specific issue of tuition fee equity is expected to be largely “self -correcting”, and no further significant action is likely to be required, or warranted, in the foreseeable future to correct a serious inequity.

With the fee increases to be implemented for apprenticeship programs over the next three years, fees for apprenticeship programs will be comparable to those charged for “regular” programs. Furthermore, It is likely that given the current economic climate and period of labour shortages, and barring other major changes to the somewhat complex national apprenticeship system, that the provincial government will exert relatively tight control over tuition fees so that any subsequent increases will not have a detrimental impact on apprenticeship enrollments.

However, the trend toward apprentices taking a greater responsibility for and covering a greater portion of their training costs may present two specific issues for further review.

- 1. Colleges may want to closely review their cost structures associated with providing apprenticeship programs, or considering implementing such systems that would facilitate arguments to recover all or a greater portion of such “consumables” costs.**

To the extent that colleges are faced with real costs for issues such as apprenticeship examinations (materials, supplies and utilities, for example, for some programs such as welding), there may be costs that the colleges are currently “absorbing”. The current policy of Alberta Learning in this regard is as follows.

“Charges for materials and consumables used in the delivery of apprenticeship technical training are not covered by this [the tuition fee] policy. Alberta Learning will set these charges in consultation with stakeholders.”

Consultation with NAIT and SAIT, both of whom have a higher percentage of costs covered by apprentice tuition fees, (in the order of 10% vs 6% for Clearinghouse colleges), may also be warranted.

- 2. A review of fees charged for residence accommodation should be considered in that apprentices might restrict the ability of colleges to undertake other forms of programming.**

With colleges “forced” to provide new niches and sources of revenue from providing more innovative forms of programming, they may be faced with opportunity costs of not being able to provide certain training. For example, apprentices might occupy residence space

over the summer months that might have a higher value to the college if they were able to use it for alternative short-term programming such as courses in eco-tourism.

3. Colleges should actively and aggressively explore the potential for the provision of “profit oriented” customized skills training according to the needs of their communities.

There appears to be a demand for essential skills training as a prelude to apprenticeship training. Such programming (WIN and ERIC, discussed in Chapter 4, as examples) is highly customized according to the needs of local employers. Furthermore, subsequent potential changes to the delivery of apprenticeship training (according to some of the models discussed in Chapter 5), may present opportunities for special study seminars or remedial sessions coinciding with preparation for major exams. Fess charged other professions for such programs are typically in the thousands of dollars.

Appendix 1 - Listing of Designated Trades and Occupations

A

Agricultural Equipment Technician
Appliance Service Technician
Auto Body Technician – Collision
Auto Body Technician – Collision and Refinishing
Auto Body Technician – Refinishing
Automotive Service Technician

B

Baker
Boilermaker
Bricklayer

C

Cabinetmaker
Carpenter
Communication Technician
Concrete Finisher
Construction Craft Labourer
Cook
Crane and Hoisting Equipment Operator – Conventional Mobile Crane
Crane and Hoisting Equipment Operator – Heavy Boom Truck
Crane and Hoisting Equipment Operator – Hydraulic Mobile Crane
Crane and Hoisting Equipment Operator – Medium Boom Truck
Crane and Hoisting Equipment Operator – Mobile Crane
Crane and Hoisting Equipment Operator – Tower Crane
Crane and Hoisting Equipment Operator – Wellhead Boom Truck

E

Electrical Motor Systems Technician
Electrician
Electronic Technician
Elevator Constructor

F

Floorcovering Installer

G

Gas Utility Operator
Gasfitter – 1st Class
Gasfitter – 2nd Class
Glazier
Glazier – Auto Glass Technician

H

Hairstylist
Heavy Equipment Technician
Heavy Equipment Technician – Heavy Duty Equipment Mechanic (Off Road)
Heavy Equipment Technician – Truck-Trailer Mechanic
Heavy Equipment Technician – Truck and Transport Mechanic

I

Instrument Technician
Insulator
Ironworker
Ironworker – Metal Building Systems Erector

L

Landscape Gardener
Lather – Interior Systems Mechanic
Locksmith

M

Machinist
Millwright
Motorcycle Mechanic

O

Outdoor Power Equipment Technician – Marine Equipment
Outdoor Power Equipment Technician – Power Equipment
Outdoor Power Equipment Technician – Recreational Equipment
Outdoor Power Equipment Technician – Turf Equipment

P

Painter and Decorator
Parts Technician
Plumber
Power Lineman
Power System Electrician

R

Recreation Vehicle Service Technician
Refrigeration and Air Conditioning Mechanic
Roofer

S

Sawfiler
Sawfiler – Circular Sawfiler
Sheet Metal Worker
Sprinkler Systems Installer
Steamfitter – Pipefitter
Steel Detailer
Structural Steel and Plate Fitter

T

Tilesetter
Tool and Die Maker
Transport Refrigeration Technician

W

Warehousing - Basic
Warehousing - Intermediate
Warehousing - Technician
Water Well Driller
Welder

Appendix 2

Details of the United Kingdom National Vocational Qualifications System

Introduction

The British government launched the National Vocational Qualifications (NVQs), or “Modern Apprenticeship” system in 1986. The NVQs represent Britain's first attempt to create a national system for skills certification. They are aimed at eventually consolidating a number of highly fragmented existing skill certification systems linked to different modes of training. NVQ certification is offered independent of training providers. While the NVQs are a national system, the credentialing systems that pre-date the NVQs are still in existence. These include the Cities and Guilds, Business and Technology Examination Board (BTEC) and the Royal Society of Arts (RSA) Examination Board. Some of these bodies are concurrently the awarding bodies for the NVQs for certain lead bodies.

The first NVQs came "on line" in 1988 and they have been developed for occupations across the entire economy. The NVQs are being used in England, Scotland, Northern Ireland and Wales. Scotland, however, uses its own version of the NVQs, the Scottish Vocational Qualifications or SVQs. The SVQs do not differ from the NVQs but are organized around Scotland's own vocational training and credentialing system. They also have a separate governing structure to award the qualifications, the Scottish Vocational Education Council (SCOTVEC).

The NVQ system is intended to cover all levels of skills in all industries, from entry-level to managerial jobs. The system covers skills typically gained from technical colleges, government training programs, company training and apprenticeships as well as on-the-job training.

Governance

The National Council on Vocational Qualifications (NCVQ) was created to oversee the new voluntary vocational qualifications system throughout the UK. The NCVQ sets policy on the framework of the standards and accredits industry associations, called lead bodies, to set standards for their industries. The NCVQ also accredits awarding bodies to assess candidates and grant qualifications. The NCVQ also accredits standards and performs quality assurance monitoring. Lead bodies actually set standards for their industries. Awarding bodies are associations that examine and validate standards and award certification attesting to competence. A few lead bodies act as their own awarding bodies, and many enter into partnerships with larger examining groups such as Cities and Guilds and the Business and Technology Education Council (BTEC).

Structure of System

The NVQs are classified in 11 different sectors, at five levels. The sectors are:

1. Tending Animals, Plants and Land;
2. Extracting and Providing Natural Resources;
3. Constructing;

4. Engineering;
5. Manufacturing;
6. Transporting;
7. Providing Goods and Services;
1. Providing Health,
2. Social Care and Protective Services;
3. Providing Business Services;
4. Communicating; and
5. Developing and Extending Knowledge and Skill.

Industry lead bodies set NVQs in areas of competence in their industry such as "footwear manufacturing" or "dairy retailing." They are not set for specific occupational titles. There is no limit on the number or degree of specialization of these "areas of competence" and these factors vary depending on the lead body. For example, within the engineering sector there are three separate level two NVQs for 'installing and commissioning telecommunications terminal equipment," one for cellular, one for fixed and the other for radio.

Each of the five NVQ levels represents an increasingly complex "work role" for the area of competence of that NVQ. The five levels are meant to encompass all levels of competence in that industry. In general, most industries have set standards for levels one to three and some have begun setting standards for levels four and five. Additional information is presented in the table below.

Levels	Definitions
Level 1	Competencies that involve the application of knowledge in the performance of a range of varied work activities, most of which may be routine and predictable .
Level 2	Competencies that involve the application of knowledge in a significant range of varied work activities, performed in a variety of contexts. Some of these activities are complex or non-routine and there is some individual responsibility or autonomy. Collaboration with others , perhaps through membership of a work group or team, may often be a requirement.
Level 3	Competencies that involve the application of knowledge in a broad range of varied work activities performed in a wide variety of contexts, most of which are complex and non-routine . There is considerable responsibility and autonomy and control or guidance of others is often required .
Level 4	Competencies that involve the application of knowledge in a broad range of complex, technical or professional work activities performed in a variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources is often present.
Level 5	Competencies that involve the application of a range of fundamental principles across a wide and often unpredictable variety of contexts . Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources features strongly, as do personal accountabilities for analysis, diagnosis, design, planning, execution and evaluation .

Levels one and two are supposed to be entry- level work qualifications, while level three is considered equivalent to a baccalaureate degree. Levels four and five are expected to equate

with qualifications above a baccalaureate degree. There has been opposition from the higher education system to equate levels four and five with academic qualifications, delaying the setting of the higher level standards.

The NVQ levels do not always correspond to training and career paths, although this varies by industry. In some industries, it does not make sense to attain qualifications at levels one and two since these are not full qualifications for a job.

Flexibility

At the moment, nothing prevents one lead body from recognizing another lead body's unit of competence as part of their NVQs. However, as there is no national procedure to create core competencies within or across industries, most lead bodies do not recognize each other's units of competence. The low level of transferability of units between different lead bodies is an issue the NCVQ is trying to address and there are some efforts being made to consolidate the numbers of lead bodies and encourage overlapping units.

Portability

Through a 1990 agreement, the NVQs are portable across England, Scotland, Wales and Northern Ireland.

Format

Each NVQ level consists of units of competence with elements of competence, performance criteria and range statements. Some also include underpinning knowledge. The elements of competence should reflect those things a person should be able to do at work. It is a description of an action, behavior or outcome, which the person should be able to demonstrate. Performance criteria are statements against which an assessor judges the evidence that an individual can perform the activity specified in an element. Range statements describe the range of contexts in which skills should be performed and underpinning knowledge describes knowledge assessed for competent performance. Although the titles of some units of competence are the same at different levels, they have increasingly difficult performance criteria to meet.

Use of Standards

Incentives to Use

There are currently no national incentives for companies to use NVQs. The country expects to base funding of education and training programs on the requirement of training to NVQ standards. There is no link between the qualifications system and wage agreements, although some individual companies have created incentives for employees to achieve NVQs by adding small extra payments to annual salaries.

Setting Standards

Responsible Parties

As mentioned, industry lead bodies set the standards. Most of the lead bodies pre-date the NVQ system. Many industries have a number of different lead bodies and there are issues of overlapping and over-specialized standards. There are efforts to limit the number of lead bodies setting standards within an industry so that units of competence can be transferable between NVQs. 184 lead bodies are currently accredited by the NCVQ to set standards.

Development Process

Lead bodies create standards using a common functional analysis methodology. Before the functional analysis, lead bodies are required to do an occupational mapping to determine the occupations within their industry. After that, experts are convened to identify key functions of the industry, which are broken down into units of competence. Performance criteria, "range statements" and "underpinning knowledge" are then defined. The development period is typically a year.

Updating/Review Process

There is no prescribed method for updating standards or keeping them targeted on jobs for the future, although the short development period is designed to keep the system adaptable. NVQs are only accredited for periods of two or three years at which point they must be updated. Industries that rely heavily on fast- changing technology have shorter accreditation periods. The updating process is left to the lead body. The NCVQ offers assistance to the lead bodies and a set of guidelines. When lead bodies update NVQs, they are expected to take into account changes in technology, the work environment, new legislation and issues about administrating and assessing the NVQs.

Nothing in the NCVQ's functional analysis process requires lead bodies to set standards for future skill needs. While industry lead bodies are expected to take future skill needs and changes in the workplace into account as they set standards, there is no specific requirement, procedure or review process which insures that.

Assessment and Certification of Standards

Assessment

Awarding bodies are responsible for assessment. They must recruit and train assessors and conduct national external validations of their assessments. The NCVQ verifies that the lead bodies meet these requirements. Assessment is solely performance-based. There is no theoretical component. Assessment is done either by NVQ level or by competence unit, depending on the individual being assessed and the policy of the awarding body. The NCVQ has developed national certification procedures for assessors, placing these under the authority of a Training and Development Lead Body. Lead bodies are required to have an external and internal

"verification" process for assessment. External verifiers observe samples of assessor performance.

The NVQs are independent from any particular training provider and are designed to allow people with different backgrounds to be assessed to the same standards.

Certification

Awarding bodies award NVQs which candidates keep in portfolios. Records of NVQs are kept by each lead body but currently there is no national record. Certification by unit of competence is also available. The NCVQ is working to create a National Recognition of Achievement which records NVQs awarded to every individual in the UK.

Provisions for Recognition of Prior Learning

The NCVQ has required lead bodies to develop policies to recognize prior learning.

Training to Standards

Training System

In England, technical training is provided through Further Education Colleges, government training programs and apprenticeship programs. Before the NVQs came on-line, each training program led to a different certification.

Link between Standards and Training

Standards are set by the lead bodies. The make-up of the lead bodies varies by industry; some have union representation while others are purely company and industry representatives. The NCVQ accredits standards but is limited in further roles. The NCVQ can only make suggestions on the format, not the technical content, of the standards.

NVQs are independent from the training system, in that no particular program of training is specified to reach a given level of qualification. Certification is based solely on one's ability to meet the standards. England does, however, expect to restructure its training system around the NVQ standards so that training pathways to the qualifications are clear. The training system includes the Further Education Colleges and government training such as the Youth Training Program. Even when this restructuring is complete people will be assessed without regard to training mode so as to allow prior skills and skills gained informally to be certified at any point.

Because the NVQs are developed by different lead bodies with no mechanism to coordinate cross-industry skill requirements, the NVQs are **not** a modular system. Within the NVQs awarded by a specific lead body, some of the units of competence may be the same, however, and can be thought of as modular. While SVQs are organized in the same fashion, training that leads to meeting performance criteria for SVQs is organized in a modular fashion.

Scotland

The NVQ system operates slightly differently in Scotland, as it has been integrated into a previously existing and different vocational training and credentialing system.

System Structure

SCOTVEC is Scotland's oversight body for the SVQ system. It was created in 1985 to oversee the modularization of the Scottish vocational education system, or the classification of vocational training courses into competency units that can be combined in different ways to lead to different qualifications. At that time, SCOTVEC was also made the awarding body for a new system of National Certificates linked to groupings of vocational education modules. When the NVQs were developed in 1990, SCOTVEC was assigned the task of aligning them to the already-existing Scottish modules and the Scottish National Certificate system. SCOTVEC has eight sector boards, each focusing on a particular sector of industry and including both industry experts and educators. These boards review all NVQs before they are accredited as SVQs. Thus there is an additional "layer" of review of standards in Scotland. The sector boards also review NVQs when they are updated and accredited as SVQs to insure that they meet industry needs.

There are some other differences in how the Scottish system operates. Assessment for the SVQs is conducted by SCOTVEC or by the lead bodies rather than the NCVQ. Modules leading to SVQs are recorded on a Record of Education and Training. Each student is assigned a unique registration number and the information is kept on a national database. Clusters of modules lead to SVQs and to National Certificates. While assessment for SVQs is also independent of the training providers, the Scottish have identified trainers who will train candidates for the grouping of modules that will prepare them to meet SVQ standards.

Subsequent and Related Developments

A General National Vocational Qualifications (GNVQs) was started in 1992 to offer qualification for basic vocational training at the secondary school level, and to bridge the gap between secondary education and the NVQ system. The GNVQs are providing an alternative to the traditional university preparation upper secondary school program. The GNVQs are being offered at the intermediate and advanced levels in several areas. The advanced level is intended to be equivalent to the "A-Level" university entrance qualifications. Students enter the GNVQ program or the A-level program after passing a common compulsory school exam and receiving the General Certificate of Secondary Education (GCSE). If students do not go on to university, they can enter the further education system to work toward a wide range of technical certifications or degrees. There is also a small national apprenticeship system and a public training program for youth, called the Youth Training Program. Continuing Qualifications Higher-level qualifications can be gained by re-entering the Further Education Colleges to work towards other degrees or to take short skill upgrading courses. Companies also offer upgrade training.

Appendix 3 — Northern Alberta Apprentice Numbers and Completion Rates

The tables in this Appendix augment data referenced in Chapter 3. The apprentice numbers are based upon the number of apprentices completing successfully or receiving credit for the first year of apprenticeship and where the number of individuals is at least 10. Caution should be used in interpreting results for trades where number of apprentices is less than 30 as small numbers can cause wide variation in results.

Apprentice Numbers and Completion Rate for July 1, 1991 - June 30, 1992 by Trades in North Regions and Alberta

Years	Trade	Region	Apprentices*	Year0	Year1	Year2	Year3	Year4	Year5	Start Year	Base Year	Completion Rate	
												On time	2 yrs after
3	Welder	North West	19	3	3	8	0	0	0	1987/88	1991/92	73.7%	73.7%
3	Welder	North East	25	2	5	9	7	1	0	1987/88	1991/92	64.0%	96.0%
3	Welder	Alberta	265	34	72	88	36	12	2	1987/88	1991/92	73.2%	91.3%
3	Parts Tech	North East	13	0	3	8	1	0	0	1987/88	1991/92	84.6%	92.3%
3	Parts Tech	Alberta	135	10	28	54	9	3	2	1987/88	1991/92	68.1%	77.0%
4	Carpenter	North West	10	0	1	3	4	0	0	1986/87	1991/92	80.0%	80.0%
4	Carpenter	North East	12	1	2	3	0	0	0	1986/87	1991/92	50.0%	50.0%
4	Carpenter	Alberta	157	10	15	19	42	17	2	1986/87	1991/92	54.8%	66.9%
4	Electrician	North West	28	0	1	3	9	7	0	1986/87	1991/92	46.4%	71.4%
4	Electrician	North East	25	0	0	2	7	11	0	1986/87	1991/92	36.0%	80.0%
4	Electrician	Alberta	291	3	4	31	101	71	27	1986/87	1991/92	47.8%	81.4%
4	Automotive Service Tech	North West	24	3	2	5	6	1	1	1986/87	1991/92	66.7%	75.0%
4	Automotive Service Tech	North East	14	0	0	2	4	5	0	1986/87	1991/92	42.9%	78.6%
4	Automotive Service Tech	Alberta	395	9	8	70	154	54	15	1986/87	1991/92	61.0%	78.5%
4	Millwright	North West	13	0	0	3	7	0	1	1986/87	1991/92	76.9%	84.6%
4	Millwright	North East	24	0	0	7	10	4	0	1986/87	1991/92	70.8%	87.5%
4	Millwright	Alberta	89	0	4	25	38	8	2	1986/87	1991/92	75.3%	86.5%
4	Heavy Equipment Tech	North West	18	0	0	3	10	1	1	1986/87	1991/92	72.2%	83.3%
4	Heavy Equipment Tech	North East	21	0	1	2	12	4	0	1986/87	1991/92	71.4%	90.5%
4	Heavy Equipment Tech	Alberta	214	4	5	38	113	23	3	1986/87	1991/92	74.8%	86.9%

Notes:

North West = Grande Prairie, Peace River & Slave Lake

North East = Bonnyville & Fort McMurray

Apprentice Numbers and Completion Rate for July 1, 1996 - June 30, 1997 by Trades in North Regions and Alberta

Years	Trade code	Region	Apprentices*	Year0	Year1	Year2	Year3	Year4	Year5	Start Year	Base Year	Completion Rate	
												on-time	2 yrs after
3	Welder	North West	21	0	9	10	2	0	0	1992/93	1996/97	90.5%	100.0%
3	Welder	North East	15	0	1	11	3	0	0	1992/93	1996/97	80.0%	100.0%
3	Welder	Alberta	323	13	67	151	47	10	1	1992/93	1996/97	71.5%	89.2%
3	Parts Tech	North West	12	0	5	5	1	1	0	1992/93	1996/97	83.3%	100.0%
3	Parts Tech	North East	12	0	3	8	1	0	0	1992/93	1996/97	91.7%	100.0%
3	Parts Tech	Alberta	87	4	19	41	9	2	0	1992/93	1996/97	73.6%	86.2%
4	Carpenter	North West	23	1	1	1	3	2	0	1991/92	1996/97	26.1%	34.8%
4	Carpenter	North East	12	0	0	0	3	1	0	1991/92	1996/97	25.0%	33.3%
4	Carpenter	Alberta	280	6	4	40	74	41	14	1991/92	1996/97	44.3%	63.9%
4	Electrician	North West	39	1	0	3	14	7	4	1991/92	1996/97	46.2%	74.4%
4	Electrician	North East	24	0	2	3	11	2	3	1991/92	1996/97	66.7%	87.5%
4	Electrician	Alberta	515	4	6	45	173	108	36	1991/92	1996/97	44.3%	72.2%
4	Automotive Service Tech	North West	21	0	2	2	10	3	0	1991/92	1996/97	66.7%	81.0%
4	Automotive Service Tech	North East	23	0	1	5	6	2	1	1991/92	1996/97	52.2%	65.2%
4	Automotive Service Tech	Alberta	395	8	16	60	155	56	14	1991/92	1996/97	60.5%	78.2%
4	Auto Body Tech	North West	13	4	1	4	2	1	0	1991/92	1996/97	84.6%	92.3%
4	Auto Body Tech	Alberta	113	14	15	34	18	9	2	1991/92	1996/97	71.7%	81.4%
4	Heavy Equipment Tech	North West	29	1	0	3	8	5	1	1991/92	1996/97	41.4%	62.1%
4	Heavy Equipment Tech	North East	12	0	0	3	4	2	0	1991/92	1996/97	58.3%	75.0%
4	Heavy Equipment Tech	Alberta	260	3	6	47	105	36	13	1991/92	1996/97	61.9%	80.8%
4	Instrument Tech	North West	14	0	1	2	6	3	0	1991/92	1996/97	64.3%	85.7%
4	Instrument Tech	Alberta	118	0	1	12	38	18	8	1991/92	1996/97	43.2%	65.3%
4	Millwright	North West	28	0	1	5	15	1	2	1991/92	1996/97	75.0%	85.7%
4	Millwright	Alberta	140	3	2	22	73	10	5	1991/92	1996/97	71.4%	82.1%

Notes:

North West =Grande Prairie, Peace River & Slave Lake

North East = Bonnyville, Fort McMurray

Apprentice Numbers and Completion Rate for July 1, 2001 - June 30, 2002 by Trades in North Regions and Alberta

Years	Trade code	Region	Apprentices*	Year0	Year1	Year2	Year3	Year4	Year5	Start Year	Base Year	Completion Rates	
												on time	2yrs after
3	Welder	North West	38	6	12	9	3	3	0	1997/98	2001/02	71.1%	86.8%
3	Welder	North East	64	5	11	25	6	3	2	1997/98	2001/02	64.1%	78.1%
3	Welder	Alberta	775	64	178	273	97	35	9	1997/98	2001/02	66.5%	83.5%
3	Parts Tech	North West	15	0	4	5	1	1	1	1997/98	2001/02	60.0%	73.3%
3	Parts Tech	Alberta	97	5	17	40	9	5	1	1997/98	2001/02	63.9%	78.4%
4	Carpenter	North West	14	2	1	1	5	2	0	1996/97	2001/02	64.3%	78.6%
4	Carpenter	Alberta	163	15	11	33	29	21	5	1996/97	2001/02	54.0%	69.9%
4	Electrician	North West	35	0	0	5	16	4	2	1996/97	2001/02	60.0%	77.1%
4	Electrician	North East	29	0	1	1	14	2	4	1996/97	2001/02	55.2%	75.9%
4	Electrician	Alberta	304	0	7	47	97	43	26	1996/97	2001/02	49.7%	72.4%
4	Steamfitter-Pipefitter & Gasfitter 2nd class	North East	14	0	0	1	5	2	0	1996/97	2001/02	42.9%	57.1%
4	Steamfitter-Pipefitter & Gasfitter 2nd class	Alberta	82	0	0	11	25	10	5	1996/97	2001/02	43.9%	62.2%
4	Automotive Service Tech	North West	16	1	2	1	3	2	0	1996/97	2001/02	43.8%	56.3%
4	Automotive Service Tech	North East	17	0	1	3	8	1	1	1996/97	2001/02	70.6%	82.4%
4	Automotive Service Tech	Alberta	272	26	13	52	77	30	7	1996/97	2001/02	61.8%	75.4%
4	Millwright	North West	18	0	0	8	5	3	2	1996/97	2001/02	72.2%	100.0%
4	Millwright	Alberta	118	4	5	35	36	16	5	1996/97	2001/02	67.8%	85.6%
4	Heavy Equipment Tech	North West	36	0	3	11	16	2	1	1996/97	2001/02	83.3%	91.7%
4	Heavy Equipment Tech	North East	31	0	1	8	16	3	0	1996/97	2001/02	80.6%	90.3%
4	Heavy Equipment Tech	Alberta	268	7	10	58	110	28	13	1996/97	2001/02	69.0%	84.3%

NOTES:

North West=Grande Prairie, Peace River & Slave Lake

North East=Bonnyville, Fort McMurray