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CANADA

Report of the
National Advisory Board
on Science and Technology

COMMITTEE ON NATIONAL STANDARDS IN EDUCATION

Presented to the
Prime Minister of Canada

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National Advisory Board on
Science and Technology

Conseil consultatif national
des sciences et de la technologie

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NATIONAL STANDARDS IN EDUCATION A QUESTION OF EXCELLENCE

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National Advisory Board on Science and Technology

Conseil consultatif national des sciences et de la technologie

The Right Honourable Jean Chrétien, P.C., M.P.
Prime Minister of Canada
House of Commons, Room 309-S
Ottawa, Ontario
K1A 0A6

Dear Prime Minister:

On behalf of the National Advisory Board on Science and Technology Committee on National Standards in Education, I am pleased to submit for your consideration this report which addresses the pressing need for national standards in Canadian education and training.

NABST is convinced that the foundation of progressive economic growth is an effective and responsive education system based on sound education policies with a national perspective. This NABST Report is, we believe, particularly pertinent today as the need to ensure a strong education system has been identified as an important component in your government's human resources strategy.

Our national interest demands standards of excellence but the achievement of these is difficult when there are few national standards of any kind in Canada and those which do exist are usually minimum standards. There is a sense of crisis in Canada, a sense that Canadians are not measuring up. It is the responsibility of all Canadians to address this crisis now. The Committee challenges you and your government, as you develop strategies and formulate policy, to take strong leadership and indicate a bold direction in your actions in this area. Canada needs to benchmark against the best in the world and set its standards accordingly.

In addition to the requirement for standards and achievement goals, there is a need to test for effectiveness and continuous improvement. Appropriate measurement tools are required to determine how individual students are achieving, how effective our Canadian education system is at preparing young Canadians to become a highly knowledgeable and skilled workforce, and how well our system measures up in a global context. Continuous improvement will only be maximized when responsible and instructive assessment is complemented by a commitment to analyze results, answer the "why's" of the outcomes, and make the kind of investments necessary to make the changes indicated.

New approaches are needed in apprenticeship. We question the viability of the present model in the current climate of rapid technological change, and believe that review, revision and openness to explore new ideas is called for, including a willingness to look at new approaches to "old" occupations. Training programs are being developed for the emerging technologies. Here is an excellent opportunity for the provincial and federal governments to collaborate on the development of models which match the needs of the new occupations.

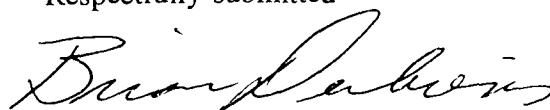
Due to the complexity and significance of the changes required and the wide diversity in economic and social environments across the country, we are convinced that there is a need for an effective and credible national education organization. There has been much progress toward cooperative and collaborative efforts in the education sector in recent months. In part, the reason for this relates to current economic realities. All areas of education and training delivery, in all provinces and territories, are experiencing significant financial restraint while at the same time they are recognizing the urgent need for change and improvement. Opportunities for collaboration exist in areas where cooperation has already begun and in other areas of shared responsibility or concern.

We believe that, as the provinces have constitutional authority for education, the Council of Ministers of Education, Canada (CMEC) should be the nucleus around which an inclusive, coordinated and national organization should be developed. The overriding goal would be to work towards the development of an effective national education and training structure which, with wider stakeholder involvement, would have the mandate for and capability of developing clearly stated goals and national standards. We believe that the CMEC can and should evolve as the structure to match these requirements and that, in its role as a major stakeholder, the federal government should facilitate in every feasible way, the development and operation of this structure.

This Report makes recommendations and suggestions for strategic actions which address this need for national standards of excellence. The momentum is there, and the Committee believes that the opportunity exists as it has not before to bring about national cooperation, coordination and planning in human resource matters. The economic and social health of our nation depends on a system which allows each citizen to become the best (s)he can be and which prepares the workforce to be second to none.

The quality of education provided for Canadians reflects the real character of our country. That quality must reflect nothing less than a national standard of excellence.

Respectfully submitted

A handwritten signature in dark ink, appearing to read "Brian Desbiens", written in a cursive style.

Dr. Brian L. Desbiens
Chairman, Committee on National
Standards in Education

The views expressed in this paper are those of the authors and do not necessarily correspond to the views or policies of the Government of Canada.



NATIONAL ADVISORY BOARD ON SCIENCE AND TECHNOLOGY (NABST)

MANDATE

The Mandate of the National Advisory Board on Science and Technology (NABST) is to advise the Prime Minister on how science and technology can be more effectively utilized in Canada, and specifically to:

- Advise on the appropriate use of government instruments for encouraging the development of science and technology, including statutes, budget measures, and regulations;
- Propose means to sensitize people to the profound changes resulting from the technological revolution, and to help them make the necessary adjustments;
- Identify changes that may be required in the educational and training institutions;
- Develop methods by which government can assist industry in responding to the challenges of international competition;
- Advise on how best to coordinate the efforts of industry, labour, universities, and government in pursuing national goals;
- Recommend priorities for the support of scientific disciplines, strategic technologies, and national programs; and
- Respond to specific questions or tasks requested by the Prime Minister.

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REPORT OF THE COMMITTEE ON NATIONAL STANDARDS IN EDUCATION

Table of Contents

	Page
Executive Summary	i
A. Introduction	1
B. Background	4
C. Standards	9
D. Testing and Reporting	16
E. School-to-Work Transition	24
F. Organization and Jurisdiction	36
G. Conclusion	43
Summary of Recommendations	45
Summary of Suggested Strategies for Action	47
Appendices	
I Samples of Provincial Pre-apprenticeship Programs	49
II Overview of Provincial Apprenticeship Programs	71
III Characteristics and Roles of a National Organization	119
Bibliography	123

EXECUTIVE SUMMARY

There is growing concern among Canadians that our learning institutions and workplaces are not responding quickly or effectively enough to rapid change and global interdependence and that our standards will not meet the international standards against which we must compete. Consequently there are calls for greater accountability and greater quality assurance within our schools, colleges, universities and workplaces; for effective systems assessment and student performance assessment, and for national standards.

This report on national standards in education by a Working Committee of the National Advisory Board on Science and Technology, addresses the need for national standards in Canadian education and training programs including standards of excellence which reflect the highest achievement. Students must be inspired to identify these standards as their ultimate goal, whatever their field. Our institutions must produce graduates whose excellence in, and mastery of, their subjects will inspire innovative achievements in the workplace.

Three areas of focus are addressed in the report: testing programs; apprenticeship programs; and aspects of organization and jurisdiction. The Committee has consulted widely with experts in education, business, labour, governments, and relevant associations to determine whether testing and apprenticeship programs contribute to the development of national standards of excellence and of a strong skills and knowledge base in science and technology. In addition, the Committee has assessed whether there is a role for a national education structure and whether such a structure would assist in driving national standards of excellence.

In the area of testing, the Committee reviewed tests being actively used, developed or proposed at the primary and secondary levels. The findings show that some effective testing material is being used or developed in some parts of the country, but opportunity of access varies. However, there is a sense of momentum at this time, and a greater sense of willingness to share information and cooperate on testing issues across the country. The Committee is recommending that there be increased support for and commitment to the development and expansion of national standards and effective outcomes measurement of both individual students and education systems, and that test results be used to bring about constructive change and improvement.

Apprenticeship issues are extremely complex and the area is even more fractured than is the testing area. There are strengths in the system but many problems, such as insufficient commitment by industry and the limitations of existing national standards, which restrict flexibility as well as efficient and effective upgrading of workplace skills in response to new technological developments. The Committee found little innovative thinking in the apprenticeable trades area despite the obvious need for excellence in training and attainment standards in order to develop a first class workforce. The Committee is recommending revision and reform of current apprenticeship programs plus development of new and effective approaches to school-to-work transitions.

As the Committee drew conclusions from its study of these issues, it became convinced of the need for a national education structure. Investigation into the organizational and jurisdictional issues involved the assessment of two current "national" education organizations: the Canadian Education Association (CEA) and the Council of Ministers of Education, Canada (CMEC), and two proposed national organizations. The Committee compiled its own list of the characteristics and roles which such an organization might have and has explored other possible structural designs as it deliberated on the best structure to fit most needs and satisfy most participants. The Committee is recommending the establishment of a national organization led by CMEC, which uses a collaborative effort to achieve common human resource development goals including the identification and promotion of national standards of excellence.

A. INTRODUCTION

Since its inception in 1987, **National Advisory Board on Science and Technology reports have consistently recognized that the foundation of progressive economic growth is an effective and responsive education system and have referred to the fundamental importance of the existence of sound education policies on a national scale.** In its assessment of the Prosperity Initiative recommendations, and its identification of the top priorities for Canadian competitiveness, the Board expressed the view that:

"... the introduction of national education performance standards is a key investment in our ability to compete as a nation. The impetus for action to achieve standards should come not only from the provinces, which have jurisdiction over education, but from all parties in our national economic union, including the federal government, industry, the workforce and educators. Student achievement in literacy and numeracy should be monitored by regular examinations based on nationally agreed standards."¹

The current Board saw a need to specifically address and examine this issue of national standards and its implications, and to recommend action which will support progress towards the establishment of national standards of excellence in all areas of education and training.

The Task:

The task of the Committee on National Standards in Education, as defined by the National Advisory Board on Science and Technology (NABST) in April, 1993, stated: "From the perspective of Canada's overall performance in education, the Committee's task is to determine,

¹ *Report of the Competitiveness Committee.* (Ottawa: National Advisory Board on Science and Technology, September, 1992), p. 3.

by reviewing the effectiveness of testing and apprenticeship programs, whether the policies, roles and mechanisms at the national, provincial and local levels contribute to national standards of excellence in education."

The Committee proceeded to examine the three focus areas: (i) testing and reporting, (ii) apprenticeship, and (iii) organization and jurisdiction, from the perspective of whether or not each contributes to the development of national standards of excellence and also whether each enhances the development of a strong science and technology knowledge base.

The Process:

In the course of its investigations, the Committee has consulted either directly, or through the study of relevant documentation, or both, with representatives of the federal government, provincial governments, business and labour organizations, educators, relevant associations, agencies, boards and councils.

Provincial, national, international and some school board level testing programs currently being used were examined, as well as those being recommended or being developed. Attention was also given to the contentious issues surrounding the reporting of test results.

Apprenticeship programs in Canada vary considerably from province to province. The Committee examined the consequences of these differences as well as the efficacy of the Red Seal Program in establishing national standards. It has investigated provincial efforts to address problems in apprenticeship programs and work being done in the apprenticeship area at Human Resources Development Canada, and at the Canadian Labour Force Development Board (CLFDB). It has looked at the considerable work being done to establish "occupational standards" through the cooperative efforts among industry sectors, Human Resources Development Canada, and the Association of Community Colleges of Canada, and the possible implications for apprenticeship programs.

In the area of Organization and Jurisdiction, the Committee has specifically tackled the question of whether there is a role for a national education organization. It has examined some of the current "national" organizations such as the Canadian Education Association (CEA) and the Council of Ministers of Education, Canada (CMEC), and some projected organizations and structures, such as the Canadian Education

Council as recommended by the Task Force on Challenges in Science, Technology and Related Skills², and the Canadian Learning Forum as recommended by the Steering Group on Prosperity³. The question of whether any of these organizations could serve the broad national interest in education has been a crucial one during the Committee's deliberations.

How each of these three focus areas plays a role, and the significance of that role in the development of national standards of excellence, are the questions with which the Committee has grappled.

The Outcome:

The consultations have confirmed the extreme complexity of the broad education and training system and the consequent depth and degree of analysis required in an examination of any part of the system. In the three focus areas the consultations have ultimately led the Committee to the conviction that the critical issues which must be addressed are:

1. there must be increased support for the development and expansion of national standards and for effective outcomes measurement of individual learners and learning systems;
2. there must be revision and reform of current apprenticeship programs plus development of a new approach to school-to-work transitions; and
3. there must be a national organization which demonstrates an inclusive and collaborative effort to achieve common human resource development goals.

² *Prosperity Through Innovation*. The Task Force on Challenges in Science, Technology and Related Skills, Summary Report, Prosperity Initiative, (Ottawa: The Prosperity Task Force, 1992), p. 10.

³ *Inventing Our Future, An Action Plan For Canada's Prosperity*. Steering Group on Prosperity (Ottawa: Steering Group on Prosperity, 1992), p. 37.

B. BACKGROUND

Public Perceptions:

Current social, economic, and technological changes at the national and international levels present dramatic implications for the places of work, education and training of today and tomorrow.

Recognition by the public of Canada's international/global involvement and of the growing interdependence of nations, is resulting in an appreciation that to remain competitive will require skill standards at the highest level. All sectors are facing the realization that international standards are rapidly becoming an issue with which they must contend. Until national standards have been developed and accepted, however, it will be difficult to meet international standards.

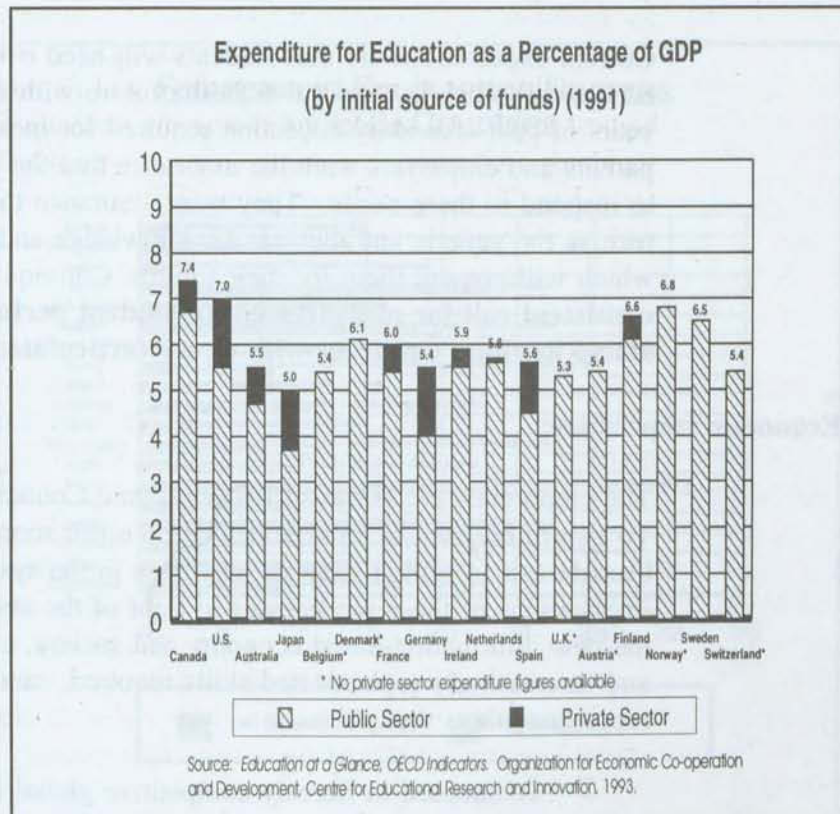
Consultations during the Prosperity Initiative in 1991 and 1992 reflected the widespread concern throughout the country about the need for national standards in education. The Prosperity Initiative Task Force on Challenges in Science and Technology and Related Skills called for "a nation-wide education initiative aimed at creating radical improvements in the educational standards achieved by Canadians". One of the key recommendations of the Steering Group on Prosperity in their report *Inventing Our Future: An Action Plan for Canada's Prosperity*, was to "focus education and training systems on results" and it called for "a Canadian forum on learning to define goals, and promote innovation and partnership for excellence in learning; and competence-based systems for all levels of education and training where success is defined by measurable skills".⁴

Canadians have tended to be complacently content with the education system and unquestioning of its methods. However, the current unease about the state of education in Canada on the part of parents, government and business is caused by an awareness of a number of significant issues such as the lack of responsible reporting mechanisms, the rapidly changing requirements of the workforce, the lack of preparedness for the workforce of a significant percentage of students, and the implications of the drop-out figures. This growing awareness has sharpened their critical observations.

⁴ Ibid. p. 8.

Expenditures:

In a time of economic restraint, the quality of the output from the education system, compared to investments made, is fuelling animated debate. The knowledge that the percentage of the Canadian GDP expended on education is the highest among OECD countries strengthens the demand for greater accountability and quality assurance.



Canada allocates 13.8% of its public spending to education, the third highest level among OECD countries. Switzerland leads with an expenditure of 15.9% followed by the United States and Finland with 14.7%.

When expenditures per student at all levels are compared to GDP per capita, they measure 30.6%, placing Canada fifth behind Sweden at 37.8%, Norway at 33.4%, Switzerland at 31.4% and Denmark at 31.2%. The United States' figure is just below Canada's at 29.6%. Canada is clearly devoting considerable resources to this important area, but there is scepticism that Canadians are getting their money's worth.

Quality Assurance:

The education system is increasingly perceived as lacking some basic elements of good management with no facility for thorough cost-benefit analysis. **There has been meagre data collection in all areas. The result is that meaningful measurement of outputs or analyses of the effectiveness of materials or methodologies within different levels and sectors of the education system, has been virtually impossible.**

Current expectations are that students will need overall higher levels of education and skills acquisition in the future with at least two to three years of post-secondary education required for most jobs. Students, parents and employers want the assurance that the system will be able to respond to these needs. They want assurance that all students will receive the generic and the specific knowledge and skill foundations which will prepare them for their futures. Consequently, **there is a consistent call for measurement of student performance; for clearly stated learning outcomes with clearly articulated competencies.**

Economic Imperative:

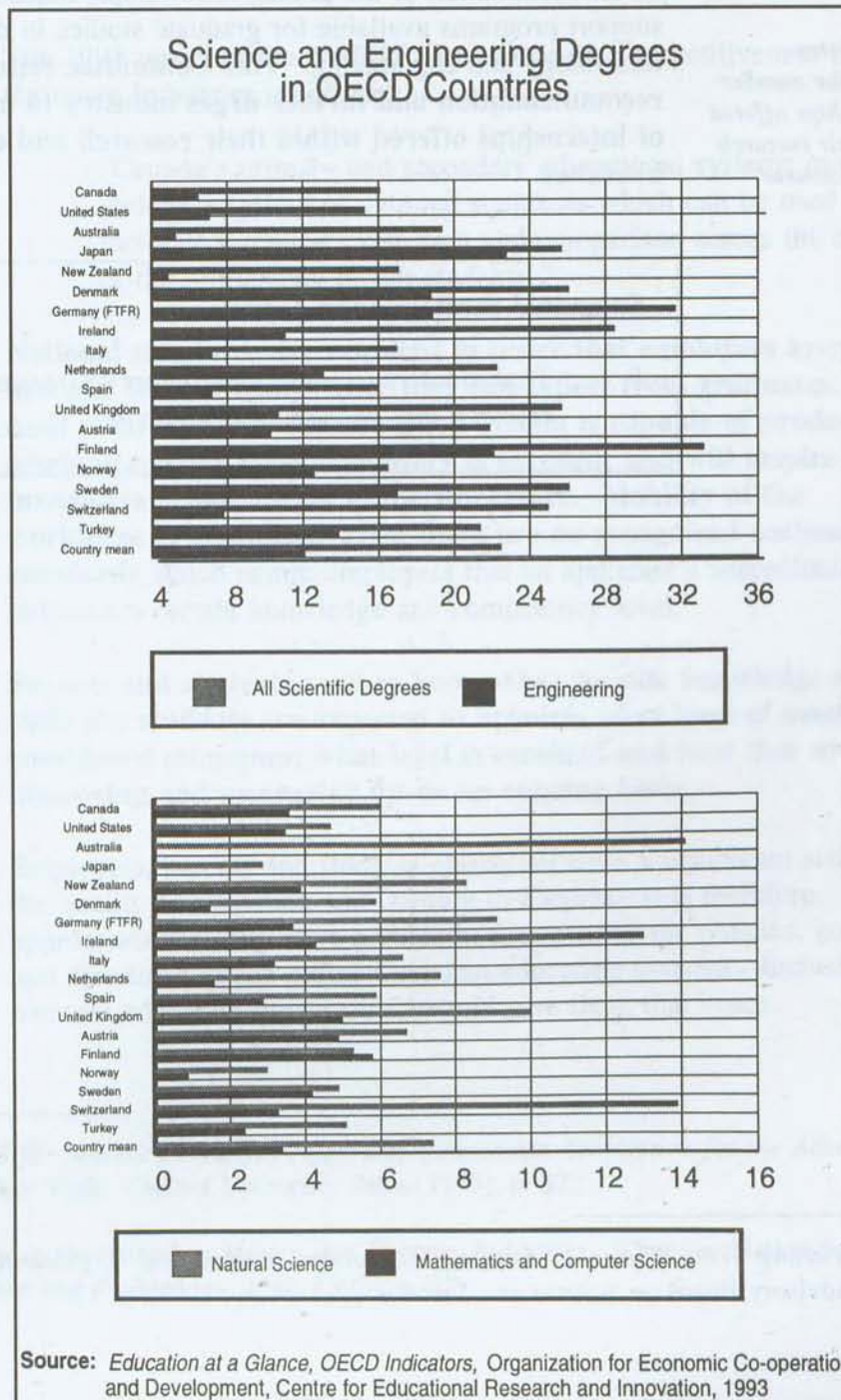
The comprehensive report of the Economic Council of Canada *A Lot To Learn*, released in 1992, examined the full scope of education in Canada and identified areas of weakness in the system. The implications of these weaknesses in light of the needs and demands of the new information-based economy and society, and in light of the new and increasingly sophisticated skills required, cannot be ignored. The report maintains that:

"To succeed in fiercely competitive global markets, Canadians will have to be innovative and flexible enough to exploit new technologies. This means that they must have good foundation skills and that they must continually extend and upgrade their range of specialized skills. In addition, however, it is clear that the new skill requirements place a heavy premium on scientific and technological literacy."⁵

⁵ *A Lot to Learn: Education and Training in Canada.* (Ottawa: Economic Council of Canada, 1992), p. 56.

Science Graduates - International Comparisons:

A look at what percentage of degrees granted at Canadian universities are science and engineering degrees, reveals that Canada is graduating far fewer in each of the science disciplines measured than many other OECD countries. Overall, it ranked sixteenth out of 24 countries with 16.1% of graduates receiving science and engineering degrees. The country mean for all OECD countries was 22.5%.



A well trained and innovative workforce must inevitably include highly qualified specialists whose expertise is second to none. **More of the top Canadian graduates in science and mathematics must be attracted to the pursuit of advanced studies in order to be among the innovators and developers of the future.** Students at all levels and stages must be encouraged to aspire to the best they can be.

Action:

That industry increase the number of internships offered within their research and development branches.

The NABST Report *Winning With Women*⁶ recommended that there be an examination of the grants, fellowships, industrial sponsorship and support programs available for graduate studies in mathematics, science, technology and engineering. **This Committee reiterates that recommendation and further urges industry to increase the number of internships offered within their research and development branches.**

Suggested Strategies for Action:

1. That industry increase the number of internships offered within their research and development branches

⁶ *Winning With Women in Trades, Technology, Science and Engineering*. (Ottawa: National Advisory Board on Science and Technology, January, 1993), p. 12.

C. STANDARDS

"A standard in its broadest sense, is something against which other things can be compared for the purpose of determining accuracy, estimating quantity, or judging quality."

National Standards:

The 1993 report of the NABST Committee on Competitiveness of the Resource Industries stated that:

"Canada's primary and secondary educational systems must include a system of national standards which can be used to facilitate a regular evaluation and comparison across the country of the proficiency of our students."⁸

National standards are required in order that employers know what minimal level of competence they can expect from graduates. They need assurance that the education system is capable of producing graduates whose level of mastery is excellent and will inspire innovative achievements in the workplace. Mobility of the workforce is minimized when there are no recognized national standards which assure employers that an applicant's accreditation indicates a certain knowledge and competency level.

Parents and students need to know what specific knowledge and skills the students are expected to acquire; what level of mastery is considered minimum; what level is excellent and how they are improving and measuring up on an ongoing basis.

Employers, parents and students clearly all have a significant stake in the quality of education and training in Canada. It is therefore appropriate that they have a voice in determining the policies, goals, and directions which define Canadian education systems. Inclusion in a national education organization would give them that voice.

⁷ *BENCHMARKS for Science Literacy, Project 2061, American Association for the Advancement of Science.* (New York: Oxford University Press, 1993), p. 322.

⁸ *Competitiveness in the Canadian Mining and Forestry Industries.* (Ottawa: National Advisory Board on Science and Technology, May, 1993), p. 32.

International Standards:

Canadians must have access to information on international standards in order to measure their performance against the best in the world.

Employers need to be aware of the consequences of meeting both formal and informal international standards. An example of formal standards are those identified by the ISO 9000 initiative which established both standards and guidelines for quality assurance. The standards and guidelines were developed by the 37 nation International Organization for Standardization in 1987 and offer internationally recognized and understood benchmarks which demonstrate that a certified organization can provide reliable, high quality service or products. Informal standards come into play, for instance, when large international companies look at the levels of expertise and skill in branch plants around the world in order to locate new operations in those best qualified to handle them. Canadian firms must do what is required to rank among the best in order to qualify for such project development.

It is clear that Canada's economic competitiveness depends not only on meeting international standards of competence and quality, but on surpassing them. The National Advisory Board on Science and Technology believes that **it will be extremely difficult to meet international standards of competence until national standards of excellence have been established at all education and training levels.** In the process of establishing national standards of excellence it will be essential to benchmark these against international standards of excellence. Thereby, maximum competitive advantage will be gained from a correspondingly high level of Canadian knowledge and expertise.

Common "Standards" Definitions:

The Committee found a great variety of different categories of standards. Some of the most common include *proficiency standards* which define a competency level and indicate the degree of mastery attained at various learning stages; *benchmarks* which indicate the achievement levels to be attained at various developmental stages of a process; *occupational standards* which usually refer to norms for the group of tasks which together identify a particular occupation; *minimum standards* which are necessary to identify the basic competencies and skills required at each stage in the learning process and to ensure that students can be measured for progress and be able to

perceive real success whatever their level of potential. There are ***standards of exposure*** which would, for instance, indicate the degree to which students "experience" mathematics, science and technology as a commonality in daily living, in the classroom or on the job; and of particular importance, **there are *standards of excellence* which reflect the highest level of achievement at all levels and in all areas of education and training.** They should be identified as the ultimate goal towards which students are expected to strive.

Progress:

Much excellent, collaborative work is taking place, particularly in the development of occupational standards and identification of the basic skill content of entry level occupations. A number of provincial education ministries are developing achievement standards in mathematics, science and other core subjects in the primary and secondary schools. Curriculum is being adjusted to ensure that students meet the standards required at specific stages in their educational development. While these initiatives are important steps in the right direction, they do focus primarily on the establishment of minimum standards. **The Committee recognizes the need to identify minimum standards and basic skills as they provide essential building blocks, but it strongly believes that standards of excellence must also be identified and promoted.**

Promotion of Excellence:

Action:

That awards for teaching excellence be expanded to include post secondary instructors/professors.

That an award be established to recognize professors who promote the pursuit of graduate studies in mathematics, science, technology and engineering.

The Canada Scholarships Program is an example of excellence achieved and rewarded at the university entrance level. The Prime Minister's Awards for Teaching Excellence in Science, Technology and Mathematics are given to outstanding elementary and secondary school teachers. The Committee believes that **there is an additional need to reward teaching excellence at the post-secondary level.** As well, **an award for professors who promote the pursuit of graduate studies in mathematics, science, technology and engineering could contribute to the attainment of higher standards and increase the number of highly skilled Canadians.**

Action:

That a package of visual presentations on Canadian Nobel Prize winners be developed to promote excellence through these examples of outstanding Canadian accomplishment.

To increase awareness of the existence of excellence in Canada, **Canadian Nobel Prize winners should be individually highlighted as significant examples of outstanding achievement. Each should be promoted in visual presentations** similar to the Heritage Minutes initiated by the Charles R. Bronfman Foundation and produced in conjunction with Canada Post and the Power Broadcasting Corporation. An appealing package should be developed which promotes excellence, raises awareness of Canadian accomplishment and should be made available to schools across Canada.

A study of secondary level education called the **Exemplary Schools Project** is currently being administered by the Canadian Education Association with funding by Human Resources Development Canada. The purpose of the study is to document practices which work well in twenty one particularly successful secondary schools. **The study should provide significant material for studies into why these particular examples are achieving excellent outcomes.**

Research and Development in Education:

The development of standards of excellence in education presupposes a well grounded knowledge of what is required in order to attain them. Research on even some basic questions such as learning styles, effective methodologies for teaching mathematics, science, technology and engineering and how best to measure outcomes, is lacking in Canada. **Canadians need to know how to instruct and prepare all Canadian students so that they reach their maximum potential.**

The National Network of Learning (NNL) is a collaborative initiative in which school boards across the country and private industry, including high tech businesses, are working together. Their goal, through the use of modern technology, is to improve the way math and science is taught in Canadian schools by: creating "centres of learning" in selected schools across the country that are linked by computer to one another and to math and science databases; developing computer-assisted mathematics and science curricula for use in the learning centres and by preparing "model" science and math lessons that show teachers how to use computers and state-of-the-art technology in their classrooms.

SchoolNet is a cooperative initiative of federal, provincial and territorial governments, educators, universities, colleges and industry. Its aim is to link all Canadian schools to the electronic highway as soon as possible thereby making national and international educational resources available to Canadian teachers and students. Some additional services and resources which will be available to teachers and students include innovative teacher-designed networking projects, on-line support and troubleshooting.

Action:

That responsible research be undertaken on the effective use of new technologies in the classroom.

Programs such as these, and others in pockets across the country, are exciting in the potential gains they promise to the education process. However, **to ensure that maximum benefits accrue and that scarce resources are not wasted, responsible research is required into the effective use of new technologies in the classroom.** In addition to the examples cited above, the pros and cons of multi-media distance education are as yet unknown in terms of teaching and learning effectiveness and in terms of cost effective delivery.

The Social Sciences and Humanities Research Council (SSHRC) identifies education as one of the fifteen disciplines into which it divides the social sciences and humanities for granting purposes. The education discipline includes education, education psychology, library and archival sciences and information science. While the total funds available for basic research declined 25% between 1991/92 and 1993/94, the percentage of these funds allocated to the education discipline increased by 5.7 percentage points during the same time frame, up from 9.7% to 15.4%.

Education Funding 1991 - 1994:

	1992/93	1992/93	1993/94
Total Grants Made:	\$42,884,733	\$39,550,313	\$32,132,986
Total Grants to Education:	\$4,145,981	\$4,927,033	\$4,940,564
Percent of Total:	9.7%	12.6%	15.4%

Source: *Program Competition Statistics - Final Version*. Evaluation and Statistics Division, Social Sciences and Humanities Research Council of Canada. 1991, 1992, and 1993.

These increases indicate the importance accorded to the education discipline by this federal granting council. Valuable contributions are being made and should continue. However, this basic research work is not specifically determined or directed according to the crucial questions and identified needs which are relevant in changing environments and which are national in scope.

SSHRC does maintain a separate grants program for specific research which provides funding support for specifically defined areas. Themes for strategic research are designated by the Council and generally last for five years. Themes for 1992/93 included Education and Work in a Changing Society, and Science and Technology Policy in Canada. In 1992/93, the Strategic grants program awarded \$6.9 million to ninety-three research projects. Of this total, \$1,845,396 was distributed to areas of directed research in education, making up 27% of the total funds available for specific research.

These numbers sound encouraging until placed in the context of total education expenditure in Canada which totalled \$53 billion in 1991/92. In 1993 Canada joined an OECD pilot study aimed at developing indicators of education research and development. Statistics Canada estimated that in 1991/92 total research and development expenditure on education was \$118 million. This represented 16% of R & D expenditure on social sciences and .22% (that is between one quarter and one fifth of a percentage point) of total expenditure on education in Canada.⁹

Statistics Canada does not break these figures down further, and the specific amount of research focused on primary and secondary education is therefore unknown. It would be useful to have such a breakdown.

Action:

That additional funds be made available for directed and relevant research in education and training.

That research be undertaken immediately to determine the percentage of education spending required for effective research.

The Committee believes that strategic research in education merits a far greater percentage of education funding than the amount currently allocated. In addition to the research funds available through SSHRC, it believes that additional funds must be made available for directed and relevant research in education and training. Canada directs 13.8% of its public spending to education. The question of what percentage is required to conduct adequate and effective research is itself a research question that must be addressed immediately. **At a time of scarce monetary resources, it is imperative that the most effective use be made of the funds available. Research should be focused on truly using our resources to best advantage.** This issue should be addressed by a national, annual conference on education.

⁹ These figures were produced for a pilot study and therefore they are subject to future modification.

Recommendations on Standards:

1. That standards of excellence be identified at all levels and in all areas of education and training. They should reflect the highest national and international levels of achievement and the ultimate goal towards which students are expected to strive.
2. That a greater percentage of education expenditures be targeted for education research and development to ensure that predictable funding is available for long term research in this area.

Suggested Strategies for Action:

1. That awards for teaching excellence be expanded to include post secondary instructors/professors.
2. That an award be established to recognize professors who promote the pursuit of graduate studies in mathematics, science, technology and engineering.
3. That a package of visual presentations on Canadian Nobel Prize winners be developed to promote excellence through these examples of outstanding Canadian accomplishment.
4. That responsible research be undertaken on the effective use of new technologies in the classroom.
5. That additional funds be made available for directed and relevant research in education and training.
6. That research be undertaken immediately to determine the percentage of education spending required for effective research.

D. TESTING AND REPORTING

"The assessment of national standards of educational attainment is a new political imperative¹⁰ in what formerly was seen as primarily a professional and pedagogical concern."

In Canada, a great deal of money and expertise is directed to the development of curriculum, teaching methodologies, school environments, teacher training and school equipment. Without question, Canada has one of the most sophisticated and complex education systems in the world. Notwithstanding, there is discontent expressed in many quarters and the public perception is that we are not measuring up. Average Canadian students score poorly on international comparisons. There is an escalating public anxiety about unemployment levels and about the employability potential for individuals and their children. Canadians have looked to education as the guarantor of employment opportunity and employment stability. This assumption has been seriously shaken in recent years.

Why Test?

The pressing questions which emerge include: are the students achieving what is expected and desirable at various stages and at a high level of mastery? Are they leaving school with the requisite skills needed to equip them for today's workforce? Responsible tests, designed to give accurate information on specific aspects of the learning continuum can assist greatly in answering some of these important questions.

Tests have fallen largely out of favour in recent decades. This was in part a result of irresponsible use of tests at times, for purposes for which they were not designed, and of misinterpretation or wrongful reporting of test results. Such misuse of test material points to the need to follow strong ethical guidelines when designing and employing test materials of any kind.

Excellent guidelines for a full set of principles have been developed by a Joint Advisory Committee and are contained in *Principles for Fair*

¹⁰ OECD Documents, *Curriculum Reform, Assessment in Question*. (Paris: Centre for Educational Research and Innovation, Organization for Economic Co-operation and Development, 1993), p. 30.

*Student Assessment Practices for Education in Canada.*¹¹ The principles summarize important factors to consider in exercising professional judgement in assessment and in striving for the fair and equitable assessment of all standards.

For the purposes of this NABST study, the Committee focused its attention on the primary and secondary levels of education. While the term *assessment* is widely used today, in this report, test and assessment are regarded as equivalent terms. The NABST Committee's review of testing programs being used across Canada showed very little use of standardized material. There is considerable variation in the extent and sophistication of provincial testing programs which is reflective of the varied resource bases of the individual provinces. Several provinces are in the process of developing new testing programs to correspond to the standards which are being established.

Analysis of testing programs currently being used by individual provinces reveals that most provinces use two types of tests. There are systemic tests which evaluate the system by testing a statistically arrived at sample of the student population and cover broad subject areas, and there are tests which examine an individual student's level of accomplishment. Most tests are developed using provincial curricula and are used to indicate the degree to which provincial standards are being reached. While these two types of tests are linked, the different purposes of each require different testing methodologies. As a result, the data produced by one type of test cannot be used to provide accurately information required by the other. This study has focused

¹¹ The *Principles of Fair Student Assessment Practices for Education in Canada* was developed by a Working Group guided by a Joint Advisory Committee. The Joint Advisory Committee included two representatives appointed by each of the following organizations: Canadian Education Association, Canadian School Boards Association, Canadian Association for School Administrators, Canadian Teachers' Federation, Canadian Guidance and Counselling Association, Canadian Association of School Psychologists, Canadian Council for exceptional children, Canadian Psychological Association, and Canadian Society for the Study of Education. In addition, the Joint Advisory Committee included a representative of the Provincial and Territorial Ministries and Departments of Education.

Principles For Fair Student Assessment Practices for Education in Canada. (1993). Edmonton, Alberta, Joint Advisory Committee, Centre for Research in Applied Measurement and Evaluation (Mailing Address: Joint Advisory Committee, Centre for Research in Applied Measurement and Evaluation, 3-104 Education Building North, University of Alberta, Edmonton, Alberta, T6G 2G5.

Action:

That appropriate testing mechanisms be available which provide meaningful measurement of individual student's achievement levels and progress.

on systemic testing in Canada today. However, **the Committee believes strongly that testing mechanisms must exist which provide meaningful measurement of individual student's achievement levels and progress.**

National Tests:

The **Canadian Test of Basic Skills** provides comparative data on student achievement in fundamental skills including listening, vocabulary, reading, word analysis, language and mathematics. Once widely used and accepted, Newfoundland is the only province still using it on a province wide basis. Some individual school boards across the country continue to adapt it for their individual use.

The **School Achievement Indicators Program** was instituted by the Council of Ministers of Education, Canada (CMEC) with the first test in mathematics administered in all provinces and territories, with the exception of Saskatchewan, in May of 1993. More than 28,000 13 year olds and approximately 27,000 16 year olds were tested in mathematics content and problem solving. A second test in mathematics has been scheduled for 1997. Tests have been prepared in reading and writing and are to be administered in 1994 with the next one scheduled for 1998. Work is well advanced for the development of a similar test in science as approved by the Ministers in September 1993. Implementation of the science exam is expected in 1996 with a second one scheduled for 1999.

Results of these tests will give provincial and territorial ministries of education evaluations on which they will be able to make changes to curricula or other aspects of their education systems. Retests are planned at three or four year intervals for each of the subject areas with the expectation that this will allow ministries to evaluate the effectiveness of changes instituted as a result of the earlier tests.

The Committee applauds this initiative and the excellent tools for change and improvement it affords to the education system. **It recommends further study of the potential use and expansion of this program and that the federal government assist in the development and administration of tests for all core subjects. The current**

shared funding agreement whereby the federal government is contributing to the development of the SAIP science test is an example to follow. As well, it believes that the frequency of the tests should be increased to yearly tests in all subjects. The three to four year pause between tests will reduce the effectiveness of the program as an agent for indicating areas requiring improvement and for monitoring and measuring continuous improvement. Sufficient investment must be assured to analyze and utilize the results fully and implement the recommended changes.

The Committee recommends also that results be reported in two ways. The first would be aimed at the professionals for whom the results will provide knowledge on which to build a better "system". The second should convey the indications of strengths and weaknesses in the "system" in plain language which the public will understand. Such reporting will provide some of the accountability and monitoring of the "system" which has been requested. Frequent testing and clear reporting will ensure that the potential exists for continuous improvement of the system.

The **Canada Scholarship Program Exam** was suggested as a national exam which would be designed for use in the selection of Canada Scholars through its identification of the best achievers in science and mathematics. Given the small number of scholarships available compared to the total student population at the equivalent age, it would test very subtle differences at an already high level of excellence. The test would benefit and provide information to a very small segment of the total student population and at one stage only. This test has met with resistance in all provinces and is unlikely to be developed. The Committee agrees that such a test would have limited value and does not recommend that it be developed.

Employability Skills Testing:

Proposals have been made for a generic test of basic skills for entry level jobs where the applicants do not require advanced education or training. The concept was born as a result of the perceived lack of national testing and education standards in Canada and, in part, also because of the call by the Task Force on Challenges in Science, Technology and Related Skills for educational reform and "a nation-wide education initiative aimed at creating radical improvements in the

educational standards achieved by Canadians".¹² It would test basic skills in reading, writing and mathematics and possibly other "softer" employability skills such as personal management and teamwork. Such a test was thought to be a way for employers to give input to the education system on the kinds of skills needed by employees. It was also hoped that it would act as a catalyst to encourage schools to raise standards.

A test of this kind presupposes a clear understanding of what these basic skills are and a determination of the level of the skills. There have been attempts at determining or defining basic skills. The most widely used guideline in Canada at present is the Conference Board of Canada *Employability Skills Profile*.¹³ The federal government is beginning an examination of the "basic skill" content of entry level occupations in Canada. For each lower-skill entry level occupation, a basic skills profile is to be developed from information supplied by job incumbents in Canadian workplaces. This kind of in-depth analysis of "basic skills", which will also draw on the useful work already done in the United Kingdom and Australia, will be of great value to both educators and employers. As well, the American College Testing National Jobs Analysis Study has been established to collect data on skills in workplaces using the Secretary's Commission on Achieving Necessary Skills (SCANS) skills definitions as a basis. Until the results of these studies are known, it appears premature to consider whether a testing program is feasible or appropriate. **The Committee questions the viability of a separate test for these skills but rather prefers that eventually assessment of these basic skills be incorporated into the SAIP as it develops and expands its mandate.** The inclusion of provincial education ministries and educators as well as employers in this examination and identification of basic skills will contribute to the comprehensive quality of outcome and its acceptance nationally.

Action:

That the assessment of basic skills, once they have been defined, be incorporated into the SAIP as it develops and expands its mandate.

International Tests:

It is of considerable value to participate periodically in international testing programs in order to be able to anchor and evaluate what is being done in Canada in a global context. However, in order that

¹² *Prosperity Through Innovation*. The Task Force on Challenges in Science, Technology and Related Skills, Summary Report, Prosperity Initiative, (Ottawa: The Prosperity Task Force, 1992), p. 10.

¹³ *McLaughlin, Employability Skill Profile*. (Ottawa: Conference Board of Canada, 1992).

participation in international testing programs produces valuable returns, it will be important that participation be systematic. It will also be important that there be the will to take more from the results than a simple determination of "who wins". **The Third International Mathematics & Science Study (TIMSS)**, scheduled for 1994/95, is the latest in a respected series of international studies sponsored by the International Association for the Evaluation of Education Achievement (IEA). Canada will be participating in this together with over fifty other countries. Some of the purposes behind the development of the TIMSS are: to identify variables associated with high levels of achievement in mathematics and science; to explain characteristics that influence education performance; to provide comprehensive documentation of current national and international data about curricula, teaching practices, student achievement and attitudes; to provide an assessment of the range and impact of alternative curricula offerings, teaching practices and administrative arrangements for learning; and to provide an identification of what is possible in the teaching of mathematics and science.

If such information were attainable from participation in an international study, the potential for suggested change or modification to curricula and/or teaching methodologies could be considerable. Participation by each province as a distinct entity, and as part of a Canadian sample, would better equip provincial ministries to focus on their specific weaknesses and strengths.

Continuous Improvement:

The Committee believes that regular testing is a necessary part of the continuous improvement process. **However, no testing program will be effective or worth the cost or effort, if there is no intention, no will to make changes as a result of the outcomes. Testing must be associated with change.** Resources will be required to analyze results appropriately and thoroughly and implement change accordingly.

The Organization for Economic Co-operation and Development paper, *OECD, Documents, Curriculum Reform, Assessment in Question*, states that:

"Assessment serves two general functions...:
as a measure of performance, of individual learners, of schools
and of the system as a whole (a function associated with
certification, accountability and control); and

as a natural part of the learning process (through feedback, guidance, diagnosis of difficulties, setting targets and motivation)."¹⁴

The Committee believes that there can and should be a role for testing programs in the development of national standards of excellence, but whether or not that role is maximized will be dependent on the types, quality, and appropriateness of testing materials and the reporting methods used.

¹⁴ *OECD Documents, Curriculum Reform, Assessment in Question*. (Paris: Centre for Educational Research and Innovation, Organization for Economic Co-operation and Development, 1993), p. 36.

Recommendations on Testing Programs:

1. That the federal government assist in the development and administration of systemic tests for all core subjects building on the work of the **School Achievement Indicators Program**. The current shared funding agreement whereby the federal government is contributing to the development of the SAIP science test is an example to follow.
2. That the frequency of the administration of the tests in all core subjects be increased to that which maximizes the information necessary to ensure continuous improvement. If maximum advantage is gained with yearly testing, then that should be instituted.
3. That results of all systemic tests be reported to the public in an appropriate language and format so that there is a clear understanding of the strengths and weaknesses of the system.
4. That all levels of government consider it a priority to allocate sufficient funds to analyze and utilize the results fully and to implement the recommended changes.
5. That fair and equitable mechanisms be devised to ensure assistance, where required, to all provinces wishing to participate in international testing programs.

Suggested Strategies for Action:

1. That appropriate testing mechanisms be available which provide meaningful measurement of individual student's achievement levels and progress.
2. That the assessment of basic skills, once they have been defined, be incorporated into the SAIP as it develops and expands its mandate.

E. SCHOOL-TO-WORK TRANSITION

"Within 10 years Canada has to create a pool of the most effective knowledge workers in the world. It has to become the most attractive environment for global investment in knowledge-based work."¹⁵

I. Jurisdictional Realities:

Countries with a history of strong apprenticeship systems which have served their industries and economies well, such as Germany and Great Britain, have national apprenticeship systems. In Canada, jurisdictional fragmentation of responsibility creates numerous problems. The federal government provides financial support for in-class training and income supplements. Regulatory powers for the professions and trades belong to individual provinces and territories which govern day-to-day administration of the training programs; maintain records of registrants; ensure that contractual obligations are upheld; set the minimum wage for apprentices; and provide final certification of apprentices upon completion. Private industry is responsible for providing on-the-job training; ensuring that the apprentice works under the direction of a qualified journeyman; and providing wages while the apprentice is on site. The resulting diversity of content and standards leads to difficulties in recognition of credentials between provinces, which in turn impedes worker mobility. The critical importance of effective and coordinated school-to-work transition programs in the development of a competent, highly trained workforce has led the Committee to a critical evaluation of the present situation.

II. Some Problems with the Canadian Apprenticeship System(s):

The Committee's opinion after study of, and consultation on, the current training and apprenticeship systems, is that apprenticeship programs are not fully meeting national needs. At a time of rapid technological change, the Committee questions the viability of the apprenticeship process as it currently exists. Some of the key problems identified during the Committee's research and consultations include the following areas:

1. Variation in Training:

Variation in training programs in terms of both the "in-school" and the "on-the-job" aspects presents particular difficulties for the movement of

¹⁵ Pierre Ducros, Chairman and CEO, DMR Group, Montreal, Quebec.

apprentices between training institutes or from one employer to another should this become necessary due to layoffs during on-the-job training. It also confounds the possibility of collaboration between colleges and the sharing of resources and programs at a time when greater collaboration is called for among all sectors.

The Atlantic Canada Association of Directors of Apprenticeship and Board Chairpersons is studying the issue of sequencing and training in an attempt to harmonize their programs. The importance of this is particularly obvious in these smaller provinces where apprentices may have to leave their province for either work placements or in-school training.

There is some coordination of programs through the Western Alliance where chairpersons of the Apprenticeship Advisory Boards from Alberta, Saskatchewan, British Columbia and Manitoba meet and discuss common problems and issues. Saskatchewan has some liaison with Ontario on a trade by trade basis.

The move in some trades training programs to a modular system of credits which is more flexible than the traditional block release will make it much easier for apprentices to move from one training base to another or from one related occupation specialty to another.

Assessment and accreditation of previous training, experience and practical job skills is haphazard across the country. Most provinces have a system in place, either formal or informal, which generally uses a combination of experience and documentation as evidence of the level of qualification attained. Assessment is usually on a case by case basis with informal contact between the Directors of Apprenticeship who commonly contact each other to discuss particular situations. In provinces with large workforce populations this informal system is neither efficient nor effective. **The Committee believes there is a clear need for a national assessment mechanism to evaluate apprentices' qualifications which would be accessible to all training institutions and employers.** Similarly there is a need for efficient and accessible assessment and accreditation of international qualifications. *The Canadian Information Centre for International Credentials*, "The Centre", under the CMEC, is a centralized referral and information service which assists individuals and organizations requiring information regarding the assessment of foreign qualifications in Canada. The Centre also provides information on Canadian postsecondary education. These responsibilities, together with the Centre's position within the CMEC, combine to make it the logical base from which a national accreditation body would emerge.

Action:

That a national assessment mechanism to evaluate apprentices' qualifications be established and be accessible to all training institutions and employers.

2. *Training the Trainer:*

Action:

That industry, training institutions and governments cooperate to develop effective training programs for apprentice supervisors.

Particular inconsistency exists in "on-the-job" training, as there is rarely any facility in place for training the trainer. This is a major weakness and one which should be addressed. It will require the cooperation and collaboration of industry, training institutions and the relevant areas of the provincial and federal governments. The Canadian Council of Directors of Apprenticeship (CCDA) could possibly provide the necessary leadership and coordination but it would require considerable commitment and participation on the part of industry.

In Germany, the Law on Vocational Training and the Craft Trades Act requires that a firm must have one or more individuals registered as "trainers" with the local Chamber of Commerce and Industry before it can establish contracts of apprenticeship. Retraining and updating of trainers' knowledge and skills is offered at a number of vocational training centres.

3. *Job Security:*

Difficulties can arise with apprenticeship programs existing in some unionized work environments. When layoffs are required, apprentices are usually the first to go according to common rules of seniority. This contributes to the large percentage of non-completers in apprenticeship. This lack of job and consequently also of training security is a definite disincentive when young people are considering the option of apprenticeship training. In addition, when there are inconsistencies in the sequencing of training programs, it is difficult for an apprentice in mid training to transfer to another company and/or training institution in order to complete the program. Here again a modular training system could alleviate these mobility problems to some degree.

4. *Secondary School Pre-apprenticeship Programs:*

There is a serious lack of accurate and positive career counselling which could attract more students into the trades and technology fields. Instead, many students and parents see that direction as undesirable and second rate. There are problems with pre-apprenticeship and technical programs at the high school level. Few schools offer the kinds of introductory programs which would encourage and prepare male and female students for apprenticeship and technical programs.

Linkages between schools and the workplace are, in general, very weak. The result is frequent dissatisfaction on the part of employers with the degree of preparedness of entry-level employees, regardless of the level of education attained.

An examination of current pre-apprenticeship programs and school-to-work transition programs across the country reveals no uniform action but a general will to change and enlarge the scope of secondary level education from a predominantly academic perspective to one which recognizes the need for a broader skills base. Many provinces are beginning to address the need for, and to implement, pre-apprenticeship skills training programs with the appropriate personal and interpersonal competencies necessary to succeed in a job and in life.

Appendix I presents some examples of pre-apprenticeship programs currently being tried in some provinces and there are many more. Most are in the early stages of implementation and therefore it is too soon to determine their effectiveness. **A forum for exchange of information on programs that work would be of enormous advantage to all participants. There would be the opportunity to share success and to establish collaborative efforts where possible. The consequences in terms of economy of time, experimentation and cost would be considerable.** The latter saving is important as many provinces cited lack of resources as the greatest deterrent to more extensive work in this area.

On-the-job experience is becoming recognized as a fundamental need. **If the curriculum included the requirement that each high school graduate have some practical training in at least one occupation as a means of learning job-related skills, the ease of entry into the labour force would be greatly enhanced.**

5. Upgrading and Updating:

New technological developments result in the need for significant changes to the skills and knowledge required of the worker.

Problems exist around updating/upgrading the curriculum/work content of many programs in order that they keep pace with galloping changes in technology.

Changes of this nature are generally seen by the provinces to be industry driven. Strong links between industry and training institutions are therefore necessary in order that industry can communicate new knowledge and techniques more quickly. Industry could take greater

responsibility for assisting training institutions by providing access to new equipment which can both be expensive and have only a brief lifespan before new change overtakes it.

Some of the new training initiatives being tried in response to change include: modular delivery, distance education, part-time training, day or week release training, competency based training/evaluation, and pre-apprenticeship programs. Many of these initiatives are particularly good for women who continue to encounter barriers to employment in the trades and technologies.¹⁶ There is a need to drop obsolete course material so that courses do not become overloaded. Scarce resources were again recognized as a problem.

6. Sector Collaboration:

Collaboration between industry and training institutions has been minimal and there is a lack of coordination between industry needs and apprenticeship training. Industries of all sizes, in general, have failed to recognize and fulfil their responsibilities in the training and retraining field.

Greater collaboration among and between sectors and between business and labour is beginning with some success and should be given every incentive and assistance to continue to work for common solutions.

A good example of joint action is The Sectoral Skills Council, a joint human resources development initiative in the Canadian electrical/electronics industry. The Council is composed equally of business and labour representatives. Its mandate covers a wide range of undertakings in the human resource area including developing training and communications initiatives, researching technological change and operating a Sectoral Training Fund. Recent work of the Council has included the development of Modules for Electrician Trade Updating, for Industrial Mechanic Millwright Updating, and for a new apprenticeable trade: Automated Equipment Maintenance and Repair. The Council operates, to date, only in Ontario but other provinces have expressed interest.

A collaborative effort involving the Canadian Council of Technicians and Technologists, the Association of Canadian Community Colleges, a variety of industrial organizations and the federal government

¹⁶ *Winning With Women in Trades, Technology, Science and Engineering*. (Ottawa: National Advisory Board on Science and Technology, January, 1993).

established the Committee on National Standards for Applied Science and Engineering Technologists. Standards have been developed for thirteen discipline areas in the field of applied science and engineering technology. The Chairman of the Committee stated that the development of the entry level standards will "establish discipline based criteria that can promote recognition of qualifications, facilitate labour market mobility, guide the development of education and training programs, establish references for professional certification, and set measures for occupational delineation in industry". While not directly linked to apprenticeship programs, the Committee believes that this initiative deserves mention and that all examples such as this provide groundwork from which other sectors including apprenticeship training can learn and on which they can build.

7. Funding:

Funding of apprenticeship and training programs is an extremely complex issue and needs further study. Essentially, funding falls into three areas:

1. funding of apprenticeship programs in general; e.g. establishment of programs, updating/upgrading, development of examinations and participation in the Red Seal program;
2. income support for individual apprentices; and
3. funding for the development of new models in response to evolving workplace requirements.

The use of Unemployment Insurance funds gives the impression that only the unemployed enter apprenticeship programs. This raises the question of whether the number of apprentices would drop significantly if they were not paid to enter the trades. Past motivators may no longer be valid.

Colleges and training institutions are feeling the financial strain of funding up-to-date equipment in response to the demands of rapid technological changes. Greater collaboration between the colleges and industry could be one way to alleviate this shortfall.

Action:

That alternative funding methods for apprentices be studied and developed including options of bursaries, scholarships and student loans.

Alternative funding methods to assist apprentices need to be studied and developed. **Consideration should be given to equivalent access to bursaries, scholarships and student loans, similar to those available to other students at Community Colleges and to students at Universities.** Apprentices would be treated in the same way as other students. Such an approach would confirm the legitimacy of the apprenticeable trades as equal in quality and importance in the education and training sector.

III. Apprenticeship Programs and Initiatives

Red Seal Program:

Action:

That for Red Seal trades, the CCDA, in consultation with industry, establish workplace competency levels which can be tested and monitored.

That the CLFDB National Apprenticeship Committee study the "minimum" standard aspect of the Red Seal qualifications to determine ways to effectively raise the level of these standards.

That the Red Seal designation be expanded to include other trades where provincial commitment exists.

That the CCDA consider establishing a new "Seal" denomination for trades where several provinces agree upon common standards but some decline to participate.

The Interprovincial Standards Program (ISP), commonly known as the Red Seal Program identifies common "standards" for trades, thus facilitating credential acceptance and mobility for these tradespersons across the country. **These standards are, however, minimum standards, not "standards of excellence".** Not all provinces offer all of the Red Seal trades or encourage their trades trainees to take the exam. The percentage of trades with Red Seal designation is low and the process to add trades to the list is slow and expensive. Little long term planning is apparent on a national scale. The Red Seal does not monitor the skills of its holders once they have achieved an interprovincial certificate. Upgrading is sporadic, uncoordinated and not standardized. Workplace competency levels should be established, tested and monitored.

Despite these numerous shortcomings, there is general acceptance that the program has merit. The established standards are national ones and rather than abandon the system, ways to address the problems must be found and implemented without delay.

The Canadian Labour Force Development Board (CLFDB) National Apprenticeship Committee is addressing many of these issues in its working groups and expects to propose recommendations for change. **The NABST Committee believes that it is important that the CLFDB study the "minimum" standard aspect of the Red Seal qualification with a view to increasing the level of the standard.**

Past attempts to bring reform and change have not produced results. As committees deliberate the problems, they go unsolved while technological and industrial change marches forward. The workforce remains behind, inadequately prepared to meet it. Where there is sufficient provincial interest, **Red Seal designation should be expanded to include other trades and occupations.** Where there is not total consensus across all provinces on recommended changes, **there should be provision for a few to adopt commonly agreed upon change with others free to join when ready.** In such cases a new "Seal" denomination could be assigned to indicate its difference.

An Interprovincial Computerized Examination Management System (ICEMS) is being developed. The System will be a construct of banks of coded and validated examination items/questions for each of the Red

Seal trades. This system, together with a modular system of training for both in-school and work place components should facilitate updating of skills and examination delivery and make access to both more economically viable in a time of acute funding shortage.

Establishment of Occupational Standards:

A significant amount of important work is being undertaken on the establishment of occupational standards by The Sectoral Partnership Initiative at Human Resource Development, the Canadian Labour Force Development Board (CLFDB) and the Association of Canadian Community Colleges (ACCC). Industrial sectors are also involved in the sector studies. These studies are providing an excellent base from which to look at standards in the workplace and in training programs.

The role of industry in the development of standards of excellence is pivotal. Standards developed for apprenticeship programs and in other technical and technological occupations respond to those demanded by employers. It is naive to think that training institutions can or should set standards which do not respond to practical needs. **The onus is therefore on industry to keep abreast of international standards and developments in their sector, to be familiar with research and development and technological innovations in their field, and to respond in a timely manner in order to remain competitive.** Their response will include adapting their workforce to the new skills required. Industry must recognize the need for a workforce with a high level of skills as opposed to a minimum level, in order to respond quickly to change.

Action:

That the federal government actively assist industry in gathering the appropriate international industrial and technological intelligence they require to match the skills of their workforce to the best in the world.

Training institutions must be able to respond equally quickly in order to deliver the appropriate training modules. **The federal government can make a valuable contribution by assisting industry in gathering the appropriate international industrial and technological intelligence on the skill levels they require to remain competitive.** There is very close correlation between this proposed action by the federal government and Recommendation 1 of the NABST Report on International Science and Technology, *Making the International Connection*, which details specific ways by which government can assist small and medium sized businesses in the acquisition of science and technology information and intelligence. The interrelatedness between these two areas is significant and should be addressed in all information gathering exercises. **When there is full awareness of the need to meet and surpass international standards, national standards of excellence will become a reality.**

Provincial Apprenticeship Reviews:

Several provinces have recently completed, are planning, or are in the midst of, reviews of their apprenticeship programs. All of the problems identified by the Committee are recognized to some degree by most of the provinces and there is common agreement that changes are required. Many voice an interest in establishing new apprenticeship programs in emerging technology and high growth areas. Many are re-evaluating the means of delivering programs with a view to making them more responsive to workplace needs. Appendix II gives a brief overview of current provincial apprenticeship programs.

The common interest of many provinces in these areas offers a unique opportunity for the sharing of information and research. **Regular interprovincial meetings of Directors of Apprenticeship and other relevant ministries would facilitate cooperation.**

Alternative Approaches:

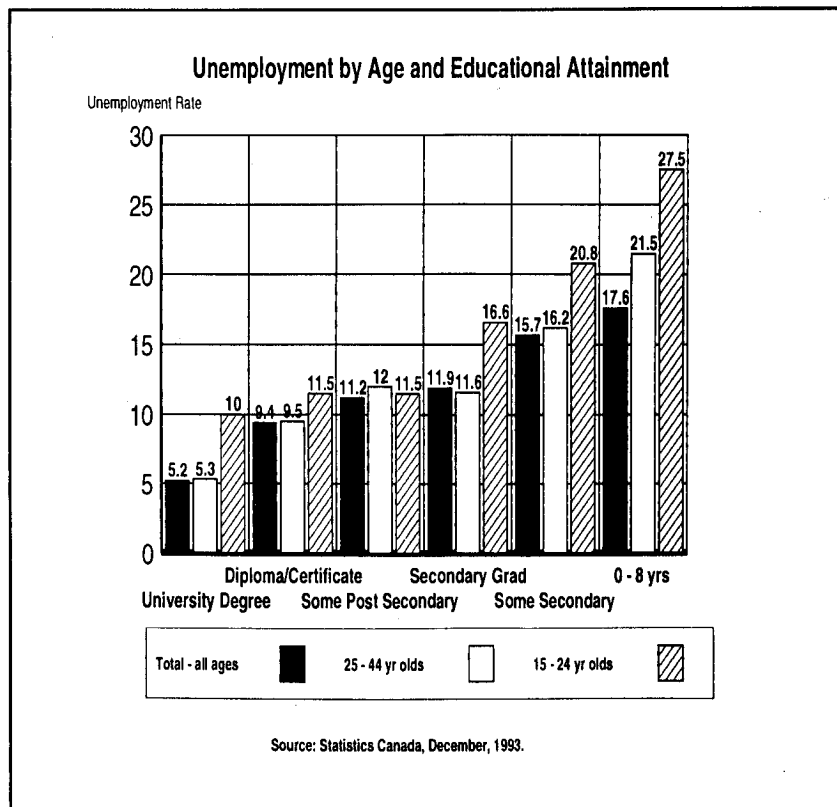
Some good attempts at revision and reform are being made but the Committee does not think that they go far enough. **Different approaches are needed which respond to the needs of the twenty-first century. As training programs are developed for the emerging technologies, it appears counterproductive to link these new technologies to outmoded structures. An excellent opportunity exists here for the provinces and the federal government to collaborate on the development of new models appropriate for these new occupations.** While exploring new directions, it will be prudent to keep what works and to examine why. An adaptation of current co-operative education programs may be the answer. However, **the important thing is to approach the issue with openness to explore new directions in training. For existing trades, one idea may be to suggest that the National Innovations Advisory Council (NIAC) support a pilot project in which an interested province and industry would test a new model in one of the current apprenticeship areas. The current apprenticeship model is based on past learning and work environments and worked well in that context. The question arises as to whether the traditional and historical reasons for its design and its success are still valid today. A close look at successful co-operative programs would reveal whether apprenticeship programs may benefit from adopting some of their best attributes.**

Action:

That NIAC support pilot projects to test new models in current apprenticeship.

As new training programs are developed and old ones revised, attention should be given in their design to facilitating movement between disciplines and through different levels. Common and

similar skills should be identified in related disciplines and training programs designed so that these common skills become a strong foundation upon which specialized skills are built. Workers could then move with greater ease and minimal retraining across related disciplines or into new occupational areas. Equally important is communication and collaboration on course design and content, in related subject areas, between the trades training institutions, community colleges and degree granting institutions. Coordination of learning material will enable students to progress from one to the other with minimum setbacks and offer an environment of continuous learning to individuals working in the trades, technical and technological occupations. The facilitation of horizontal movement will give greater access to higher levels of training and qualification, that is, vertical movement up the occupational skills ladder. Students and workers would not feel that an early commitment to one trade automatically closed the doors to growth and advancement.



Statistics Canada data demonstrates clearly the relationship between the levels of education attained and the unemployment figures. Young people must see the relevance of remaining in school and attaining a level of knowledge and skills training which will not only prepare them

for workplace entry, but for continuous learning and upgrading of their knowledge and skills throughout their working life.

Action Required:

The Committee recognizes the degree of complexity in this area, but also that **action is needed to make school-to-work transition and apprenticeship programs more responsive to the modern workplace.**

Development of a system which is more flexible and which addresses the problems identified is timely given the Government's desire to increase the number of recognized trades/technologies to include entry level positions in up-and-coming industries such as biotechnology.

Recommendations on Apprenticeship Programs:

1. That the federal government, in conjunction with interested provinces and industries, support pilot projects to test new models and/or methodologies in current and proposed apprenticeship programs and in the newly emerging technological occupations.
2. That provincial ministries consider the option of including in the curriculum the requirement that each high school graduate experience some practical training in at least one occupation as a means of learning job related skills which will ease entry into the job market.

Suggested Strategies for Action:

1. That a national assessment mechanism to evaluate apprentices' qualifications be established and be accessible to all training institutions and employers.
2. That industry, training institutions and governments cooperate to develop effective training programs for apprentice supervisors.
3. That alternative funding methods for apprentices be studied and developed including options of bursaries, scholarships and student loans.
4. That for Red Seal trades, the CCDA, in consultation with industry, establish workplace competency levels which can be tested and monitored.
5. That the CLFDB National Apprenticeship Committee study the "minimum" standard aspect of the Red Seal qualifications to determine ways to effectively raise the level of these standards.
6. That the Red Seal designation be expanded to include other trades where provincial commitment exists.
7. That the CCDA consider establishing a new "Seal" denomination for trades where several provinces agree upon common standards but some decline to participate.
8. That the federal government actively assist industry in gathering the appropriate international industrial and technological intelligence they require to match the skills of their workforce to the best in the world.
9. That NIAC support pilot projects to test new models in current apprenticeship.

F. ORGANIZATION AND JURISDICTION

"Many Canadians are not well served by their education system ... To change this situation we need, first of all, a broad consensus among Canadians on the role and value of learning. Next, stakeholders must commit themselves to improving the coherence of the system."¹⁷

Diversity is frequently a source of strength and has been a defining feature of the Canadian social and political landscape. Few would cheer the demise of diversity in favour of total homogeneity. However, if diversity leads to isolationism, it can become a weakness not a strength. **Strength is gained when the best in diverse programs and organizations is recognized, shared and sometimes adopted and integrated by other organizations, sectors or jurisdictions.**

Education and training in Canada is constitutionally the responsibility of the provinces. Nevertheless, the federal government makes significant financial contributions to education and training. In 1991/92, federal expenditures in support of education and training reached \$7.7 billion. 48.2% of this went to post-secondary education, 38.1% to vocational training and 13.7% to elementary and secondary education primarily through the Education of Indians and Inuits Programs and the Official Languages in Education Program. The Royal Commission on Aboriginal Peoples included an examination of First Nations education as part of its consultation process. A number of recommendations on education are expected in its final report, which will be complete by early spring, 1995. The release of this document undoubtedly will generate discussion of First Nations education.

Every aspect of the Committee's study pointed to the urgent need for cooperation and collaboration at the national level. The need is crucial and the opportunity is present to build on existing structures. A strong consensus exists that the time is right.

The Challenge - National Vision in a Provincial Jurisdiction:

At a time when there is an almost universal cry for improvement and financial restraint in the delivery of education and training programs, across all jurisdictions, there is an urgent need for a national vision.

¹⁷ *A Lot to Learn: Education and Training in Canada.* (Ottawa: Economic Council of Canada, 1992), pp. 47-48.

The fact that this national vision is required in a provincial jurisdiction, poses a particular challenge for all concerned Canadians.

The Canadian Education Association (CEA) has discussed the concept of a **federal bureau of education** from time to time since the idea was first raised in 1898. Since education is a provincial responsibility, this has not transpired and the CEA has attempted to fill the need instead.

In its consideration of the key question of whether or not there is a role for a national education organization, the **Committee developed its own initial criteria for the characteristics that a national education organization should possess and what roles it could play** (see Appendix III). It then looked at some existing and proposed national organizations.

Existing "National" Organizations:

The **Canadian Education Association** pursues the improvement of education and serves the education community by providing opportunities: to study issues of common interest; to share ideas, experiences, and information; to establish and maintain linkages with government bodies, non-government agencies and individuals; to analyze trends and directions through research; and to participate in learning activities. Its membership is composed of ministers, deputy ministers, staff from ministries and departments of education, school board administrators and trustees, principals, teachers, members of faculties of education and community college staff, as well as the organizations which represent them. Individual membership is open to anyone. Associate membership is open to non-commercial associations and organizations concerned about education.

The Council of Ministers of Education, Canada (CMEC) has five functional areas in its organization: a forum for ministers and officials from the ten provinces and two territories; a focal point for major long term projects addressing national concerns; the agent of the provinces in international educational-related activities; administrator of national programs in the official languages; and general education issues. The Interaction/Consultation activity of the CMEC includes secretariat staff attending meetings and regularly consulting with representatives of education related organizations, the Canadian Commission for UNESCO, and the Conference Board of Canada. Membership is restricted to ministers and senior officials from the provinces and territories.

Proposed "National" Organizations:

The two proposed organizational structures which the Committee assessed were the **Canadian Education Council** as recommended by the Prosperity Initiative Task Force on Challenges in Science, Technology and Related Skills, and the **Canadian Learning Forum** as recommended by the Steering Group on Prosperity.

The **Canadian Education Council** "as a flexible, practical mechanism, would promote radical improvements in education at all levels of the education system from early childhood learning through elementary, secondary and post-secondary education. The Council would also monitor the attainment of these outcomes".¹⁸ The Council would be a private, non-governmental institution at arm's length from the sponsors. It would be non-political, an expert research body, cooperative in its operation, responsible for all levels of formal education, and focused on excellence.

The **Canadian Forum on Learning** was proposed as a body that would bring together providers and users of education and training from across the country and enable them to work constructively together in pursuit of common goals. It would be independent of government and have broad and diverse representation.

Possible Alternate Structure:

Action:

That CMEC address the issue of becoming the nucleus around which would develop a new, inclusive and coordinated organization.

The Committee believes that a "national" organization must be a structure which will be effective in achieving constructive objectives, and at the same time be acceptable to all of the players who should be active participants. Consultations revealed strong feelings against the building of a "new" structure.

Constitutional authority rests with the provinces. Therefore the Committee considers that the CMEC should become the nucleus around which would develop a new, inclusive and coordinated national organization. The broadened and enlightened mandate announced in the declaration by the CMEC, in Victoria in September 1993, indicated the intention to provide "leadership for change and to

¹⁸ *Prosperity Through Innovation*. The Task Force on Challenges in Science, Technology and Related Skills, Summary Report, Prosperity Initiative, (Ottawa: The Prosperity Task Force on Challenges in Science, Technology and Related Skills, 1992), p. 10.

provide a strong national voice for education in Canada". It also stated the intention to "call on parents, students, teachers, school boards, education organizations, federations and institutions, business and labour, as well as appropriate federal departments and agencies for their support and cooperation". **It will be essential that all the stakeholders and professional groups be included and that there evolve a balance of influence in decision making.**

Specifically, the conceptual structure which resulted after consideration of several alternatives by the Committee, would include representatives from the following groups as full participants:

- Provincial and Federal Ministers of Education and Training
- Major Education Associations
- Major Education Federations, e.g. The Canadian Teachers' Federation
- Major Parent's Organizations
- Major Student's Organizations
- Employers
- Media Representation
- Canadian Council of Directors of Apprenticeship (CCDA)

Participants must be included as integral to the policy and decision making aspects, and in all the responsibility areas of the organization in order to contribute effectively their expertise, perspective and concerns. Parents, for instance, would be in a more active position to ensure that mechanisms exist which will respond to the call for accountability of those in the field.

Roles and responsibilities of the organization would include:

Determination of National Goals and National Standards towards which all education and training programs would be directed through a philosophy of continuous improvement. National Standards of Excellence would be identified and promoted as the ultimate goal in all sectors.

Coordination of shared programs, interests, issue resolution, etc. An annual conference should be held to address national education issues. All organization members would be active and full participants.

Communication and dissemination of new innovative and successful methodologies, programs such as effective pre-apprenticeship/school-to-work programs, technological developments and all aspects of the work of the organization.

An Annual Education Conference on pertinent issues of concern to the inclusive membership. Some examples of subjects for discussion could include science and technology and education; and effective mechanisms and networks for communication of programs and methodologies that work.

International Liaison with organizations such as UNESCO, Commonwealth Education Conferences, and the International Association for the Evaluation of Education Achievement (IEA).

Accreditation of previous training, experience and job skills. A "National Accreditation Centre" is already in existence within CMEC and some progress is evident. Nevertheless, this initiative would be expanded in order to support pan-Canadian portability of credits at all educational levels including the professional level.

Measurement of systemic performance and assistance and advice when requested on the development of individual testing mechanisms. A **National Measurement Body is required** which would assume responsibility for continuous updating and refinement of national education assessment indicators, statistical data collection and examination, and for development of national and international testing programs. The former would build on the current collaboration between the CMEC and Statistics Canada; the latter on the excellent work begun through the SAIP for national programs. Ultimately, this body would integrate all levels and types of testing. Appropriate and various testing materials would thereby be available, as required, to provinces, municipalities and individual schools.

Research and Development in the comprehensive field of education and training. Discussion in the Standards Section of this report identified the need for additional focused, directed research to supplement that supported by SSHRC. Funding for this additional research should be shared broadly by all levels of government and industry, and should be administered by experts identified by the national education organization. Allocation of funds for specific, directed research (in addition to that administered by SSHRC) would be to an outside body best qualified to perform it such as private firms, or universities.

Recommend and Facilitate Change in current teaching methodologies and in all areas of the education system. Such changes would be in response to research and development findings, including outcomes from pilot projects and proven innovative approaches to education delivery.

The CMEC has been perceived to have concentrated its work in the primary and secondary levels of education. In the expanded configuration, its involvements must include equally the education and training sectors beyond the secondary level. A national body would provide a forum for addressing standards, compatibility and portability, notably in the education of professions such as law and engineering.

The Committee recommends that the provincial and federal governments, stakeholders, and professionals collaborate and cooperate to establish an effective national organization.

No organization, whatever its structure, will achieve any progress or improvements in the overall system until there is the "will" to change, to participate in a collaborative and cooperative structure, and to work towards national goals. The Committee believes it is incumbent upon all the players to ensure that the will is there and is maintained.

Recommendations on Structure:

1. That a new, inclusive and coordinated national organization be developed. With the CMEC as the nucleus, the organization would build on some of the structures and initiatives already in place and augment these to fulfil an inclusive mandate.
2. That the measurement branch of a national organization provide the provinces with the expertise and assistance required for the design and maintenance of testing mechanisms which provide meaningful measurement of an individual student's achievement and progress.
3. That an annual conference on human resources be established which would tackle many national education issues, one of which would be Science, Technology and Education. The conference would involve all stakeholders and professional education organizations.
4. That further development and expansion of national education assessment indicators which is being jointly undertaken by Statistics Canada and the Council of Ministers of Education, Canada (CMEC) be identified as a priority.
5. That the federal government provide leadership in determining the optimum percentage of education funds which should be dedicated to research. Accordingly, it would contribute to a research and development fund which would be administered by the national education organization, while continuing to support research in education and training areas through SSHRC.

Suggested Strategies for Action:

1. That the CMEC address the issue of becoming the nucleus around which would develop a new, inclusive and coordinated organization.

G. CONCLUSION

Canada's economic competitiveness depends on its ability to meet and surpass international standards of quality and competence. Minimum education standards, such as those identified in this report are essential blocks on which to build, but **standards of excellence must also be identified and promoted as vital to our national interest**. The goal of every student, teacher, and education system must be to achieve **continuous improvement** in knowledge and skills acquired and in the level of excellence attained.

Knowledge of whether or not **continuous improvement** is in fact happening can only be reliably gained through effective measurement techniques. Appropriate measurement tools must be used to test individual student achievement and education systems, and to assess Canadian programs, practices and outcomes in a global context. The Committee believes that there is a critical requirement for continuous development of the best of current testing programs and, where necessary, development of new testing programs. Regular use of appropriate tests at optimum intervals is necessary, as is the implementation of results, in order to bring about required change. **Testing must be associated with change.**

Without the necessary revision and reform, the Committee questions the viability of the traditional apprenticeship model in the current climate of rapid technological change. As training programs are developed for the emerging technologies, an excellent opportunity exists for the provincial and federal governments to collaborate on the development of models which are appropriate to the new occupations. Effective school-to-work transition programs are required which equip young people with the kind and level of skills which match the needs of the modern workforce.

National standards established by the Red Seal Program in some apprenticeable trades facilitate the recognition of credentials and worker mobility within these trades. The Committee applauds recent progress in the expansion of the Red Seal designation to other trades and in the attempts by some provinces to address recognized problems, but believes that movement towards change is too slow and fragmented. The minimum standards established will not encourage the development of a workforce trained to the highest standards and skilled in the latest applicable technological developments. Serious attention must be given to raising the level of standards to reflect a commitment to excellence.

Industry holds the key to progress in the definition of occupational skills and standards of excellence and therefore has a responsibility to become more actively involved. Review, revision and openness to explore is called for, including a willingness to look at new approaches to "old" occupations.

Rapid change, economic constraints and a growing awareness that there is a critical need for reform is creating an atmosphere conducive to greater cooperation. A great deal of excellent and innovative work is being done in the education field in various parts of the country. Optimum advantage from these isolated efforts can only be obtained through coordination and cooperation. A central body is needed to identify and make necessary connections, to facilitate complementarity, to share work being done, and to prevent duplication.

The Committee is convinced that as constitutional authority rests with the provinces, the CMEC should be the nucleus around which would develop a coordinated national organization. Membership in the organization must include professionals such as teachers and administrators, and stakeholders such as parents, students and employers. Collaboration through the CMEC has already begun and can be built upon. It is incumbent upon all the players to possess the will to change, and to participate in a collaborative, cooperative structure. If an effective structure is to achieve significant progress, it must establish a balance of influence in decision making, and work towards common, national goals.

In this information age, the wealth of a nation is measured by the skills, knowledge and abilities of its people. Their cumulative talents stimulate enterprise and allow it to prosper. This in turn provides the wealth that supports our standard of living. Therefore, the quality of education we provide for our citizens reflects the real character of our country. That quality must reflect nothing less than a national standard of excellence.

SUMMARY OF RECOMMENDATIONS

Recommendations on Standards:

1. That standards of excellence be identified at all levels and in all areas of education and training. They should reflect the highest national and international level of achievement and the ultimate goal towards which students are expected to strive.
2. That a greater percentage of education expenditures be targeted for education research and development to ensure that predictable funding is available for long term research in this area.

Recommendations on Testing Programs:

1. That the federal government assist in the development and administration of systemic tests for all core subjects building on the work of the **School Achievement Indicators Program**. The current shared funding agreement whereby the federal government is contributing to the development of the SAIP science test is an example to follow.
2. That the frequency of the administration of the tests in all core subjects be increased to that which maximizes the information necessary to ensure continuous improvement. If maximum advantage is gained with yearly testing, then that should be instituted.
3. That results of all systemic tests be reported to the public in an appropriate language and format so that there is a clear understanding of the strengths and weaknesses of the system.
4. That all levels of government consider it a priority to allocate sufficient funds to analyze and utilize the results fully and to implement the recommended changes.
5. That fair and equitable mechanisms be devised to ensure assistance, where required, to all provinces wishing to participate in international testing programs.

Recommendations on Apprenticeship Programs:

1. That the federal government, in conjunction with interested provinces and industries, support pilot projects to test new models and/or methodologies in current and proposed apprenticeship programs and in the newly emerging technological occupations.

2. That provincial ministries consider the option of including in the curriculum the requirement that each high school graduate have experienced some practical training in at least one occupation as a means of learning job related skills which will ease entry into the job market.

Recommendations on Structure:

1. That a new, inclusive and coordinated national organization be developed. With the CMEC as the nucleus, the organization would build on some of the structures and initiatives already in place and augment these to fulfil an inclusive mandate.
2. That the measurement branch of a national organization provide the provinces with the expertise and assistance required for the design and maintenance of testing mechanisms which provide meaningful measurement of an individual student's achievement and progress.
3. That an annual conference on human resources be established which would tackle many national education issues, one of which would be Science, Technology and Education. The conference would involve all stakeholders and professional education organizations.
4. That further development and expansion of national education assessment indicators which is being jointly undertaken by Statistics Canada and the Council of Ministers of Education, Canada (CMEC) be identified as a priority.
5. That the federal government provide leadership in determining the optimum percentage of education funds which should be dedicated to research. Accordingly, it would contribute to a research and development fund which would be administered by the national education organization, while continuing to support research in education and training areas through SSHRC.

SUMMARY OF SUGGESTED STRATEGIES FOR ACTION

Suggested Strategies for Action - Background:

1. *That industry increase the number of internships offered within their research and development branches.*

Suggested Strategies for Action - Standards:

1. *That awards for teaching excellence be expanded to include post secondary instructors/professors.*
2. *That an award be established to recognize professors who promote the pursuit of graduate studies in mathematics, science, technology and engineering.*
3. *That a package of visual presentations on Canadian Nobel Prize winners be developed to promote excellence through these examples of outstanding Canadian accomplishment.*
4. *That responsible research be undertaken on the effective use of new technologies in the classroom.*
5. *That additional funds be made available for directed and relevant research in education and training.*
6. *That research be undertaken immediately to determine the percentage of education spending required for effective research.*

Suggested Strategies for Action - Testing:

1. *That appropriate testing mechanisms be available which provide meaningful measurement of individual student's achievement levels and progress.*
2. *That the assessment of basic skills, once they have been defined, be incorporated into the SAIP as it develops and expands its mandate.*

Suggested Strategies for Action - School-to-Work Transitions:

1. *That a national assessment mechanism to evaluate apprentices' qualifications be established and be accessible to all training institutions and employers.*
2. *That industry, training institutions and governments cooperate to develop effective training programs for apprentice supervisors.*

3. *That alternative funding methods for apprentices be studied and developed including options of bursaries, scholarships and student loans.*
4. *That for Red Seal trades, the CCDA, in consultation with industry, establish workplace competency levels which can be tested and monitored.*
5. *That the CLFDB National Apprenticeship Committee study the "minimum" standard aspect of the Red Seal qualifications to determine ways to effectively raise the level of these standards.*
6. *That the Red Seal designation be expanded to include other trades where provincial commitment exists.*
7. *That the CCDA consider establishing a new "Seal" denomination for trades where several provinces agree upon common standards but some decline to participate.*
8. *That the federal government actively assist industry in gathering the appropriate international industrial and technological intelligence they require to match the skills of their workforce to the best in the world.*
9. *That NIAC support pilot projects to test new models in current apprenticeship.*

Suggested Strategies for Action - Organization and Jurisdiction:

1. *That the CMEC address the issue of becoming the nucleus around which would develop a new, inclusive and coordinated organization.*

APPENDIX I

Examples of Provincial Secondary School Pre-apprenticeship Programs

	Page
• Cartier Employment Training Program	51
• New Brunswick Secondary School Pre-apprenticeship Programs	55
• Ontario School-Workplace Apprenticeship Program	59
• Alberta Registered Apprenticeship Program for Senior High School	61
• Prince Edward Island Cooperative Education Program	65

Note: Information contained in these examples was verified as accurate as of April, 1994.

CARTIER EMPLOYMENT TRAINING PROGRAM

The School:

Cartier Secondary School, of the Ottawa French Language Public School Board, has offered a complete program, for 38 years, to basic level students aged 14 - 21 with learning disabilities and to developmentally handicapped students.

In September 1993, the school decided to drastically change direction in order to meet the changing needs of students and society and to deliver a program which would bring out the best in their young people. The result is an employment training program directed toward the acquisition of employability skills and based on learning objectives that clearly state the level of performance to be attained.

The Mission:

The program's mission is to guarantee that the school's students/employees will:

1. become high-quality, hireable persons (according to the Conference Board of Canada criteria¹), independent and functioning;
2. earn their secondary diploma; their certificate; and
3. get a job or acquire the means of getting a job; or
4. be placed in a parallel or complementary apprenticeship program; or
5. be admitted to a post-secondary institution; or
6. start their own business.

Program Description:

The Employment Training Program is an innovative training program that, in addition to enabling students to obtain their secondary school diplomas, also allows them to acquire the knowledge, abilities, attitudes, and behaviours that are so highly prized in Canadian workers and that are specified in the *Employability Skills Profile* published by the Conference Board of Canada.

¹ McLaughlin, *Employability Skill Profile* (Ottawa: Conference Board of Canada, 1992).

This learning environment attempts to recreate a real Francophone workplace in which the participants gradually adjust to the requirements of the job market. At the same time, total respect is given to each individual's pace and direction.

The "workplace" side of the program gives students daily, concrete exposure to an atmosphere of production, creativity, opportunities, viability, and competition that prevails in private enterprise. The education and training side promotes the acquisition of knowledge, attitudes, and certain abilities that are needed to meet the requirements of the work world as specified in the aims of education. The aims of education are set out in the Ontario Education Ministry document *Ontario Schools Intermediate and Senior Divisions (Grades 7-12 OAC) Program and Diploma Requirements, 1984*.

The program comprises several workshops or businesses, each specializing in a particular field that is essential to the community's economy. By means of production contracts obtained by their teachers/managers, the students/employees are placed in a concrete, rewarding learning situation.

The five businesses:

1. RMS Cartier automobile maintenance business
2. Habitation construction and carpentry business
3. Sebho building maintenance service
4. 3 in 1 personal services
5. ProCam basic services business

Characteristics:

I. Of The Program

1. Acquisition of skills and development of generic abilities in the academic, personal, and teamwork spheres.
2. An approach to learning that is consistent, integrated, and decompartmentalized, in keeping with the operating model of a small business and the optimal management of resources such as: marketing research, human resources, marketing, finance, taxation, labour regulations, selling goods and services, and so on.
3. Areas of study and learning results are common, cross-disciplinary, and complementary to the crucial employability skills.
4. Heterogeneous work groups and sub-groups based on skill level and abilities rather than grade or difficulty level.
5. Great stress placed on work terms, partnerships with local businesses and institutions, and concrete, practical experiences.

II. Of The Curriculum

1. Basic competencies level.
2. Specific to each year of learning and apprenticeship.
3. Specific to each business.
4. Generic for all of the apprenticeships.
5. Focused on a continuum of skills and abilities to be acquired.

Aims and Objectives:

The education project offers an approach which:

1. Proves that guidance, education, and career are an ongoing, interrelated process.
2. Gives shy students and students who would otherwise be resistant, an acceptable reason for performing tasks that they otherwise would not handle.
3. Stimulates students who are not already motivated and guides those who are.
4. Encourages initiative, involvement, creativity, and synthetic reasoning.
5. Ensures that the students receive the greatest benefit from what is being done for them, because they are the heart of the program.
6. Prepares students for the unforeseen (so essential in today's constantly changing society) by allowing them to acquire the skills and abilities they need to solve problems, make decisions, express their needs, and so on.
7. Promotes a better self-image and increases self-confidence, because this program reassures young people by giving them a better understanding and control of their environment and better control over their future.
8. Offers a wider range of expertise than required by the Ontario Ministry of Education goals and objectives, by providing as well, those that are so sought after in the workplace.
9. Provides an incentive to the students/employees to do well, to demonstrate excellence. Quality is the fundamental message delivered in each of the five businesses. The students/employees have primary responsibility for their own success. The program provides them with the tools and the information that are essential for their success.

Effects on Students:

1. The students/employees are motivated and present virtually no discipline problems.
2. The students/employees can see the practical value of their school subjects.
3. The students/employees acquire the ability to put ideas together.
4. The students/employees draw connections between everything that they learn.
5. The students/employees get to know and appreciate each other.
6. The students/employees are better prepared when they enter the job market.
7. The students/employees can give job references, thanks to their employability portfolio.
8. The students/employees develop a career plan.
9. The students/employees exercise creativity in solving problems and managing human resources.
10. The students/employees feel less afraid about the future and better prepared for post-secondary education and the job market and are less defeatist, fatalistic, and cynical.

Conclusion:

This project is innovative because it combines education, guidance, and the workplace. It requires co-operation from everyone involved in the businesses (managers, employees, human resources, senior management), as well as from community resources, corporations, and business people in the region.

In the words of the educators in this school: "Finally, as educators we have become proactive professionals. No longer are we driven helplessly by society's needs. Instead, we offer concrete, leading-edge solutions for the better welfare of the most important segment of our society, our children. We give them HOPE!"

NEW BRUNSWICK SECONDARY SCHOOL PRE-APPRENTICESHIP PROGRAMS:

1. NEW BRUNSWICK OCCUPATIONAL TRAINING ACCREDITATION SYSTEM (NBOTAS):

The system was established in 1982 and was designed to provide credit and advanced standing for persons completing specific courses in their high school programs and then choosing to enter a community college, or obtaining employment in an apprenticeable occupation.

It was introduced to eliminate unnecessary duplication of course work which may have occurred at the high school level when these persons continued into community college or apprenticeship. Today, this system is working in the training areas of carpentry, electrical, motor mechanic, welding, typewriting, and accounting.

Features of the System:

- It provides credits for theory and practical achievements where appropriate;
- It utilizes a common inter-departmental identification system for all its components;
- It permits the maximum accreditation of skills and knowledge achieved in the public schools by the community college and the apprenticeship system;
- It has common procedures and evaluation standards across the province;
- It provides for the possible participation of all schools offering occupational preparation at the Senior High School level;
- It provides for the voluntary participation of students within a participating school;
- It provides credits that will be valid for a period of three years following the student's leaving high school.

Potential Benefits:

- A motivating influence on participating senior high school students;
- Recognition of the achievements of participating senior high school students and staff by external agencies;

- An aid to career planning for high school students;
- Improved articulation of senior high school curriculum with industry's requirements;
- Accelerated entry into the labour force;
- An increased pool of workers with identifiable skills/knowledge;
- A saving of time required for the training of these individuals in the future;
- A possible saving in time required for the achievement of journeyman status where appropriate;
- A contribution towards the easing of critical skill shortages in the province and the country;
- The foundation for expansion of the Accreditation System into other areas of occupational preparation.

School Participation:

Senior High Schools meeting required conditions and registering applicable courses are able to participate in the N.B. Occupational Training Accreditation System.

Student Participation:

At the beginning of the school year, teachers conduct information and counselling sessions on the accreditation system with the students. Students then can inform the appropriate teacher of their interest in participating in the system.

Students are continually evaluated throughout the year and in some courses students also have their theory and practical work assessed at the end of the course. Those students meeting the NBOTAS standards are then granted credit for the appropriate units of instruction.

2. NEW BRUNSWICK YOUTH APPRENTICESHIP PROGRAM

In 1993, a joint effort between the Department of Education and the Department of Advanced Education and Labour initiated on a pilot basis, in several school districts with the intention to have it available on a provincial basis, the "**New Brunswick Youth Apprenticeship Program**".

The program provides the opportunity for high school students to gain approximately 360 hours of work experience in the area of their occupational choice.

The theoretical training is very generic during the initial phase (between grade 10 and grade 11), becomes specific to their occupational area during Phase 2 (between grade 11 and grade 12), and then, in Phase 3 (post grade 12), the theory training is related directly to their specific occupational objective. It is assumed that by the time a student enters Phase 3, he or she has committed to a specific career area. Training credits become more difficult to transfer to other occupational areas as the student progresses through the phases. In Phase 1, a student interested in changing to a new area of career training can transfer most of her or his credits. In Phase 2, fewer credits would be transferable and Phase 3 training is so specific that it is unlikely that any credits could be transferred if a student decided to change occupation.

Grade 9 includes: Regular Academic Program
Career Exploration

Grade 10 includes: Regular Academic Program
Career Exploration/Job Shadowing
Application, Screening and Selection

Grade 11 includes: Regular Academic Program
Youth Apprenticeship Experience

Grade 12 includes: Regular Academic Program
Youth Apprenticeship Experience
High School Diploma and Certificate of Participation in the
Youth Apprenticeship Program

Post-Secondary alternatives:
Employment
Further Career Preparation
Apprenticeship
Community College
University
Other Institutes of Higher Learning

Career exploration will be supported by the junior high guidance program, supplemented by programs such as job shadowing, job sampling and the development of career profiles.

Youth Apprenticeship starts in the summer following grade 10. It may continue during and after school hours and during the summer months throughout high school. Students and employers determine the schedule.

To participate in the **N.B. Youth Apprenticeship Program**, students must successfully complete grade 10, career orientation, work sampling and job shadowing activities.

A variety of career options will be available to students based on employer involvement and job prospects.

During high school, students continue their academic program. Advancement in the program requires satisfactory performance in the high school academic program as well as the maintenance of high standards in the work environment.

Students will be paid by the employer for the time they spend in the workplace outside of their regular school hours.

Students may go directly to the workplace or pursue further career preparation. School credits and work experience may be transferable to post-secondary alternatives.

A commitment by Advanced Education and Labour guarantees successful **Youth Apprenticeship** students access to post secondary training offered by the New Brunswick Community College.

The program is too recent for an assessment of outcomes or success to be possible at this time.

ONTARIO

SECONDARY SCHOOL-WORKPLACE APPRENTICESHIP PROGRAM (SSWAP)

In response to the growing demand for skilled tradespeople, a program has been developed co-operatively by the Ministry of Education and the Ministry of Skills Development that allows students to work concurrently towards earning both an Ontario Secondary School Diploma (OSSD) and apprenticeship credits. Students who are at least 16 years old and who have completed the grade 10 apprenticeship requirements are eligible for enrolment in this program. For a three-year period, students attend school for the equivalent of two days per week and work as a registered apprentice for the equivalent of three days per week. They will be considered both a full-time student and a full-time employee. Since boards will receive grants based on the student's being full-time, Ministry of Education and Training (MET) approval of the program must be obtained before operating a program. Ontario Training and Adjustment Board (OTAB), Apprenticeship and Client Services Branch (ACSB) approval is required for the apprenticeship portion of the program.

The school portion of the program is tailored to reflect the specific skilled trade in which the student is apprenticed, but at the same time it ensures that the student receives a strong academic base and meets all requirements for an OSSD. For example, it could entail three credits or more per year, with related co-operative education credits. English, Mathematics and Science (Principles of Technology) and related technological studies subjects would be given each year. The requirements for compulsory credits will also have to be met. The minimum in-school portion of the program shall be the equivalent of two days per week over the three year period. In and out of school schedules should be developed in co-operation with the employers.

In the on-the-job portion of the program, the student will be considered to be a full-time employee, and therefore eligible to enrol in an apprenticeship program. Participating employers must guarantee to employ students for the full time they are enrolled in SSWAP (providing the student meets the employer's normal employment requirements). Students will be working as an apprentice under contract, and must therefore be paid according to Trades Qualification and Apprenticeship Act regulations. The in-school portion of the apprenticeship program must be completed by the student. This is usually given through a community college. As employees, students may make arrangements with their employers to work during school vacation and holiday periods, thus building up apprenticeship hours. At the end of three years, students could therefore be within one year of achieving a certificate of qualification in their particular trade.

From the viewpoint of the Ministry of Skills Development and participating companies, students who are enrolled in SSWAP are considered to be full-time employees who are given release time from their jobs in order to complete secondary school diploma requirements. The apprenticeship program will be monitored in the usual way by OTAB training consultants.

From the MET and board/school point of view, participants in SSWAP are full-time students who are augmenting their studies through extensive practical on-the-job experiences. The board/school must provide a full-time monitor who will ensure that the work program and school program are dovetailed to meet the student's needs. The monitor will also be responsible for scheduling teacher's visits to the workplace so that the integrity of the co-operative education portion of the program is maintained.

A close liaison with the local industry and unions is essential to the success of any Secondary School-Workplace Apprenticeship Program. Vehicles for establishing such a liaison include Community Industrial Training Committees, Industry-Education Councils, Skills Training Advisory Committees and Chambers of Commerce. Before requesting approval for such a program, there must be a guarantee from participating companies to provide a specific number of apprenticeship placements for the program. This may be done either by individual companies, or by groups of companies. A liaison must be established with the local community college, since it will be involved with the delivery of the in-school portion of the apprenticeship program.

Boards who are interested in establishing a SSWAP program should work with their conterminous and/or contiguous boards, their local community college, local apprenticeship branch of MSD, and local industry and unions. Joint presentations on SSWAP will be made to representatives of boards, industry and unions and community colleges by MET and OTAB, Apprenticeship Branch, on request.

ALBERTA**REGISTERED APPRENTICESHIP PROGRAM FOR SENIOR HIGH SCHOOL, (RAP)*****Offered by:***

Alberta Advanced Education and Career Development, Apprenticeship and Trade Certification Branch in conjunction with Alberta Education, Curriculum Branch.

Purpose:

- to improve the school to workplace transition;
- to offer students the chance to attend high school and train as a registered apprentice at the same time;
- to encourage students to stay in school and obtain a diploma or certificate; and
- to allow students to complete credits for a diploma or certificate and gain work experience toward a journeyperson qualification.

Entrance Requirements:

Students should be working toward the completion of all credits required for an Alberta High School Diploma or Certificate of Achievement, meet the grade entrance requirement for the selected trade, or pass the trade entrance examination.

Requirements and Responsibilities:**Local School Boards**

- The Superintendent of Schools or her/his designate is required by the two ministries to sign a Program Registration Form, indicating that the school jurisdiction is meeting all RAP requirements. This form must be filed with both participating ministries.

Alberta Education

- Alberta Education is responsible for recruiting employers and marketing of the program.
- Students will be awarded credits for courses completed in RAP in accordance with current Alberta Education policy.

- The student's total program will be designed so that he or she can move easily to a regular high school program if necessary.
- Work placements will be monitored by school board staff.
- A RAP coordinator shall be designated by Alberta Education at both the school and school jurisdiction levels. These coordinators will be trained by Advanced Education and Career Development.
- Schools will explain clearly to the student and parent/guardian the requirements for the awarding of high school course credits and the nature of RAP. In some school board districts, the parent/guardian may be required to sign a consent form to support the student's inclusion in the program.

Advanced Education and Career Development

- Students are considered regular apprentices under the Apprenticeship and Industry Training Act regulations.
- Students are employed and supervised by qualified employers with recognized certification.
- Work place experience and conditions will be monitored and evaluated by Advanced Education and Career Development staff.
- Advanced Education and Career Development coordinators, in the field and at corporate levels, will monitor each RAP student.

Student

- The student must meet the entrance requirements, maintain academic standing, and receive satisfactory evaluations from employers.
- The student must enter into a contract of indenture with the employer, and perform his/her duties as required by that contract.
- Students must find, with the aid of the school or school jurisdiction, their own industry placement.

Employer

- Employers are responsible for providing appropriate on-the-job training to apprentices, under the monitoring of Advanced Education and Career Development and the local school or school jurisdiction.

- The employer must pay the apprentice according to legislated rates.
- Employers must sign a contract of indenture with the apprentice.

School/Work Division:

Scheduling of school and work time is agreed upon by the employer, the student and the school. Apprenticeship time can also be earned during school holidays.

High school RAP credits are for work experience in the trade, using the formula of 25 hours = 1 school credit. RAP credits are usually assigned in five credit blocks (125 hours). This procedure recognizes that learning on the job is as valid as learning in the classroom.

Technical Training:

Technical training at Alberta's institutes of technology and community colleges will be scheduled for high school apprentices after they have graduated from high school.

Funding:

School Boards receive funding for RAP through grants from the Alberta School Foundation Program, a program that supports locally developed education initiatives, plus provincial vocational education enrollment unit funds.

Potential Benefits:

Students

RAP promotes awareness of apprenticeship and makes it more accessible and appealing to students while they are still in school. The program provides a real world work experience and allows students to begin their apprenticeship on-the-job training before they leave school. Students are interviewed, hired and paid apprentices wages by employers. They receive the same supervision and instruction as regular apprentices. After graduation from high school, they become full-time apprentices, completing their training to journey person certification.

Employer

In a province where the average age of first year apprentices is 27, RAP offers local industry access to a younger group of trainees. One of the benefits of younger apprentices is more flexible schedules (i.e. apprentices are not tied down by family and other commitments). RAP also allows employers in small communities to find qualified employees before they leave to find jobs in larger urban centres. Finally, RAP gives employers the opportunity to participate in the province's secondary education system and establish community partnerships for education and training. By participating in RAP, employers can play a major role in advancing the skill level of Alberta's work force.

PRINCE EDWARD ISLAND

COOPERATIVE EDUCATION PROGRAM

- Career Exploration Training (C.E.T.)
- Cooperative Work Study Training (C.W.S.)
- Vocational Experience Training (V.E.T.)

Description:

P.E.I. is currently offering a number of school-to-work transition options under the **Cooperative Education Program**. Cooperative Education is the broad term covering all types of programs/courses in which high school students, while under the supervision of the school, are involved in work experiences at selected job sites in the community. The three components are Career Exploration Training (C.E.T.), Cooperative Work Study Training (C.W.S.) and Vocational Experience Training (V.E.T.). All involve some level of on-the-job experience, but only the latter is geared specifically, but not exclusively, to apprenticeable trades.

Career Exploration Training

Targeted at full time students at least 15 years old, this is a career exploration program. It provides opportunities for students to sample, systematically, conditions for work in a variety of occupational fields. This provides a basis, through observation and supervised, unpaid participation, for an informed career choice. The student receives one credit per year (the maximum allowable C.E.T. credits is two) for successful participation.

Cooperative Work Study

Targeted at senior high school students (grades 11 and 12), this is a four credit program which provides individuals with the opportunity to integrate formal in-school course offerings with world of work learning experiences which are acquired by placing students in a variety of training/work positions within the private and public sectors. The C.W.S. component uses school and community resources through an integrated approach and is designed to help students identify career interests, develop positive attitudes and employability skills, and help students bridge the gap between the school environment and the world of work. A recommended maximum of four C.W.S. credits is recognized, based on satisfactory performance, for high school graduation, but under exceptional circumstances, the maximum can be increased to eight. Students are not paid for their work placement.

Vocational Experience Training

The V.E.T. program is designed to develop desirable attitudes about formal education and job success, and provide the opportunity for skill development through supervised on-the-job

experience. The V.E.T. is designed exclusively for students enrolled in a formal vocational course either pre-vocational or pre-apprenticeship and work experiences must relate directly to the vocational course which the student is taking.

The Vocational Experience Training Program:

The province is attempting to broaden the scope of the V.E.T. vocational training so that non-trade occupations, such as technician/technologist careers, are included. For example, whereas most vocational training was aimed at students preparing for apprenticeships (and therefore had the prefix PAP - pre-apprentice program), P.E.I. now offers *pre-vocational* courses, as a part of the V.E.T. These courses are designed on a more generic level, an example being Electricity and Electronics which is designed so that students can explore the electronics *career field*. While this course would be of interest to a student preparing for an electrician apprenticeship, it would also give a student who is considering a career such as an electronics technician, a level of initial training, some work experience, and in some cases, advanced standing when they entered a college program. Experience gained during the work placement component in pre-apprenticeship courses (but not pre-vocational) can be applied to apprenticeships.

Offered by:

Department of Education and Human Resources, Program Development Division and French Education Services Division.

Purpose:

- to enable high school students to have an understanding of the world of work;
- to help students become aware of personal aptitudes and skills;
- to allow students to explore a number of careers/occupations and develop employment skills that will enable them to become productive and satisfied workers in society;
- to develop desirable attitudes and promote an understanding of the relationship between formal education and job success; and
- to provide an opportunity for skill application and development through supervised on-the-job experience as a part of the school program.

Entrance Requirements:

Students must be enrolled as a full-time high school student in an approved high school pre-apprenticeship or pre-employment vocational course offered by an educational institution. Also, participants must be at least 15 years old.

Requirements and Responsibilities:

Local Schools

- Schools will provide a cooperative coordinator who will prepare a formalized training plan in cooperation with employers.
- Within the guidelines of the Department of Education and Human Resources, schools will make "related instruction" an integral component of the program. Related instruction is divided into two components; technical instruction and "survival in the work place" courses, aimed at developing good work habits.
- It is up to the local schools to choose to offer one or more of the V.E.T. courses, based upon student and school requirements. Industry support and the availability of resources also determine whether schools participate or not.
- Work placements will be monitored by the school coordinator.

Department of Education and Human Resources

- Students are not indentured as regular apprentices while they are enrolled in high school. If they go on to an apprenticeship after finishing school, students can be awarded advanced credits for vocational courses and work experience obtained through the V.E.T. program. Granting of advanced credit is carried out by the Apprenticeship and Industrial Training Section once an individual who has been indentured as an apprentice makes an application for credit.
- Guidelines for in-class instruction and work experience are established by the Department.

Student

- The student must meet entrance requirements, maintain academic standing, and receive satisfactory evaluations from employers.
- Students must find, with the aid of the school coordinator, their own industry placement.

Employer

- Employers are responsible for providing appropriate on-the-job training under the monitoring of the local school coordinator.

- The employer is not required to pay the student, although some firms do provide some remuneration.

Technical Training:

Students receive technical training in school through a number of *pre-apprenticeship* vocational courses (referred to as technical courses), usually two per trade or occupational area. For example, a student interested in welding would take WEL704A Welding in the first year of the V.E.T. program (grade 11) and WEL804A Welding in the second year (grade 12). Students who graduate successfully from these courses can receive credit toward their term of apprenticeship depending upon their final grade. Also available to senior high school students are career exploration courses, which are less technical, *pre-vocational* courses designed so that students can experience the working environment. For example, WEL705A - Welding Fundamentals would offer the student fundamental skills and technical information in the trade, but on a less in-depth level than the "pre-apprenticeship" courses. Pre-apprenticeship technical training courses include carpentry, child care, cosmetology, drafting, electrical wiring, machining, and motor vehicle repair. Pre-vocational courses include woodworking fundamentals, welding fundamentals, drafting fundamentals, power mechanics and electricity and electronics. Not all courses are offered in all schools. Availability is subject to school resources and student/employer demand.

Funding:

The pre-vocational and pre-apprenticeship courses are funded through regular channels out of school budgets.

Potential Benefits:

Students

The V.E.T. program develops employability skills and facilitates work place contacts which help students to find places as apprentices/workers once they graduate. It also promotes the trades and technician/technologist fields as viable career options and allows individuals to explore the possibilities in those occupations. Finally, the V.E.T. relates the subjects taught in school with students' career interests and the requirements of the workplace.

Employer

The V.E.T. program allows employers to identify and train, at little cost to themselves, talented students in areas where they will require workers in the future. It

also gives employers the opportunity to participate in the province's secondary education system and establish community partnerships for education and training.

Comments:

Discussions with the Vocational Coordinator indicated that although every effort is made to place V.E.T. students with local firms, the comparatively small amount of industry on the Island and the current economic situation make finding placements difficult for students. Individuals sometimes graduate from vocational programs without getting any on-the-job experience.

APPENDIX II

Provincial Apprenticeship Programs

	Page
Newfoundland	73
Prince Edward Island	77
New Brunswick	80
Nova Scotia	84
Quebec	88
Ontario	91
Manitoba	96
Saskatchewan	99
Alberta	104
British Columbia	109
The Northwest Territories	113
The Yukon	116

Note: Information contained in these provincial overviews was verified as accurate as of April, 1994.

NEWFOUNDLAND

Administering Body

Apprenticeships are administered by the Department of Education, Industrial Training Division.

Authority

Apprenticeships in Newfoundland operate under *The Apprenticeship Act*, last revised in 1970. The province offers 35 apprenticeship programs, 29 of which have Red Seal certification options.

Structure

Director of Apprenticeship

The Director of Apprenticeship is appointed by the Lieutenant-Governor in Council. The Director, under the direction of the Minister, administers the Act, supervises plans of apprenticeship training and inspects all training conducted under the Act. In cases where a written complaint is lodged or where the Director deems it appropriate, such as a violation of apprenticeship contract, he/she may make an investigation and report the result to the Provincial Apprenticeship Board.

Provincial Apprenticeship Board

Appointed by the Lieutenant-Governor, the Provincial Apprenticeship Board is composed of a chairperson, one official from the Department of Labour, one official from the Department of Education, and, in equal representation, two or more persons representative of employers and two or more representative of employees. The Board determines whether trades may be considered "skilled" and, therefore, appropriate for apprenticeship contracts; certifies contracts of apprenticeship; approves assignments of contracts of apprenticeship; approves plans of apprenticeship; designates trades by name; and issues certificates or diplomas to apprentices when they complete their training and pass the necessary exams. The Board is also empowered to assess prior experience in trades or in the Armed Forces and to grant credits to new apprentices. The Board is responsible for the design and monitoring of all courses related to technical instruction given to apprentices, as well as the establishment of periodic trade tests and final examinations for certification of journeypersons. For the purpose of testing and examinations, the Board may appoint and instruct examining committees. The Board may also appoint advisory committees in specific trades and may hear and rule on disputes arising from apprenticeship matters, including carrying out reviews of the actions of the Director.

Advisory Committees

The Board may, where it feels there is a need, establish trade Advisory Committees, composed of equal numbers of employers and employees from a specific trade or group of trades to advise it on certain matters or areas.

Testing and Certification

Testing and certification is the responsibility of the Provincial Apprenticeship Board, which may delegate its examination powers to a trade-specific examination committee.

Measurement/Evaluation of Product

The Director of Apprenticeship is responsible for on-going monitoring of the apprenticeship system and making reports, as required, to both the Board and the Minister of Education.

Recent Changes

Newfoundland is currently carrying out a two part review and strategic planning process. The Provincial Apprenticeship Board is in the process of holding province-wide consultations with industry, labour, and community colleges to determine comprehensive new directions for apprenticeships. Some of the areas that are being looked at are new means of delivering training, new training methods, and new areas that could be brought into the apprenticeship program. One specific need that has come up in many of the consultations is the provision of retraining courses for journeypersons who have already finished their apprenticeships. A report from this process is expected in June of 1994.

Secondary School Pre-apprenticeship Programs

Newfoundland offers a number of pre-apprenticeship programs for adults on a part or full-time basis at the province's community colleges. They have also been considering a secondary school pre-apprenticeship program but the feeling now is that there is currently a lack of opportunity for student placements due to the recession.

Regional Initiatives

Newfoundland is participating in the *Atlantic Canada Association of Directors of Apprenticeship and Board Chairpersons* study of methods to reduce barriers to employment mobility of tradespersons in the Atlantic provinces (Prince Edward Island, Newfoundland, Nova Scotia, and New Brunswick) which was launched in June of 1991. Ad-hoc task groups made up of representatives from each of the Atlantic provinces have been established to study and come up with solutions to resolve employment barriers. Some of the issues which will be investigated include: harmonizing compulsory certified trades within the Atlantic region; harmonizing legislation for the recognition of out-of-province Certificates of Qualification;

determining prerequisites for entrance to each apprenticeable trade and harmonizing them across the region; establishing a process for ensuring that existing and newly designated trades have a common scope and name in the region; establishing a process for upgrading/updating existing journeypersons in new skills required by industry in the region; finding a way to ensure that pre-apprenticeship programs encompass a common core of entry skills required by industries in Atlantic Canada; establishing a method of ensuring that instructors for apprentices and pre-apprentice courses are current in both trades and pedagogical skills and that instructor certification standards are common within the Atlantic region; and establishing a Uniform Tracking System to ensure the ease of movement of apprentices among the provinces with respect to both in-school and on-the-job training delivery methods, and credits for previous training. In all, the task forces are going to look at fifteen issues, and offer, in a final report, a series of recommended solutions to the Atlantic Ministers' Committee on Economic Cooperation. It is scheduled for completion by the end of 1994. Tele-conferences have been held with Directors of Apprenticeship across Canada to discuss and coordinate efforts at a national level. The Red Seal examination bank initiative (ICEMS) has been dovetailed with the Atlantic provinces' barrier reduction work.

Science and Technology Elements in Apprenticeship Training

This is one of the areas which is being discussed in the current apprenticeship review consultations. The extent to which science and technology are included in apprenticeship courses now is generally up to the training institution. The view of the Director was that the level of science and technology necessary in the training should be determined by the industry in conjunction with colleges, the provincial apprenticeship board and officials from the Department of Education.

Apprenticeship Programs Available and Length of Time to Completion:

Designated Trades

auto body repair* - 4 years
 boilermaker* - 4 years
 bricklaying* - 4 years
 carpentry* - 4 years
 commercial cooking* - 3 years
 construction lineman* - 3 years
 crane operator* - 3 years
 electrical construction* - 4 years
 hairstylist* - 2 years
 heavy duty repair* - 4 years
 heavy equipment operator* - 3 years
 industrial electrician* - 4 years
 industrial instrumentation* - 4 years
 industrial mechanic (millwright)* - 4 years
 joinery - 3 years
 machinist* - 4 years
 motor vehicle repair* - 4 years
 oil burner mechanic* - 3 years
 operating lineman* - 3 years
 painter and decorator* - 3 years

plumbing and domestic heating* - 4 years
 power systems operator* - 3 years
 radio and television service**
 refrigeration and air conditioning* - 4 years
 sheet metal worker* - 4 years
 sprinkler system installer* - 4 years
 roofer**
 sheet metal* - 4 years
 ships plater**
 small equipment repair - 3 years
 sprinkler installer* - 4 years
 steamfitter/pipefitter* - 4 years
 truck and transport* - 4 years
 underground miner**
 welding* - 3 years

* Red Seal Occupations

** Certification only, no in-class component

PRINCE EDWARD ISLAND (P.E.I.)

Administering Body

Apprenticeships are administered by the Department of Education and Human Resources, Apprenticeship Section

Authority

Apprenticeships in P.E.I. operate under the *Apprenticeship and Tradesmen's Qualification Act*, established in 1963 and last updated in 1982. The province offers 37 apprenticeship programs, 29 of which have Red Seal certification options. Officially, P.E.I. carries all 41 Red Seal Trades, however no actual training program has been established in 12 of these due to a lack of activity in these trades in the province.

Structure

Manager of Apprenticeship Training

The Manager of Apprenticeship Training, who represents the Province on the Canadian Council of Directors of Apprenticeship is appointed by the Minister of Education and Human Resources and is an officer of that Department. The Manager advises the Minister on matters covered by the Act, carries out duties assigned by the Act or its regulations, assists and advises the board in carrying out its duties and activities, and carries out responsibilities as assigned by the Minister. The Manager is also responsible for investigating complaints regarding misconduct and violations of contract, and reporting his/her findings to the Board.

Provincial Apprenticeship Advisory Board

The Provincial Apprenticeship Advisory Board is composed of not less than seven persons, including at least two persons representing employers, two persons representing employees, one official of the Department of Education and Human Resources, one person "appearing to the Minister to represent trades training agencies in the province" and a chairperson. These individuals are appointed by the Lieutenant Governor in Council. The Board also advises the Minister on designation or dedesignation of trades, receives reports from the Manager on misconduct or violation complaints, and makes rulings on these complaints.

Advisory and Examining Committees

An advisory and examining committee may be established for any trade by the Board. It is made up of a chairperson, not less than one representative with a trades-employee background and one individual representing employer interests. These committees, in conjunction with industry, prescribe the examination that a candidate for certification in the trade is required to pass and the degree of proficiency that the individual is required to show in practical sessions. These committees are also required to designate one or more of their members to conduct the practical sessions of the examinations.

Testing and Certification

Testing of both practical abilities and theory is carried out by the advisory and examination committees, who then pass approval to the Manager, who in turn makes a recommendation to the Minister of Labour that a certification be issued.

Measurement/Evaluation of Product

Evaluation of P.E.I.'s apprenticeship programs and the tradespersons they produce is carried out by the Department of Education and Human Resources Apprenticeship Section on an on-going basis.

Recent Developments

P.E.I. is not currently involved in any apprenticeship review projects. An extensive review was performed approximately two years ago (The Apprenticeship Review Committee - *Partners In Apprenticeship*, June, 1991). This study proposed 71 recommendations in the areas of recruitment and selection procedures, in-school and on-the-job training, administration and enabling legislation, and financial partnerships. These recommendations reinforced the perceived strengths of the apprenticeship system, such as its well-established communications infrastructure, and made suggestions to improve recruitment, including improve the image of the trades and educational pre-requisites; program currency; flexibility; quality control; equity of access; and financial arrangements. It stressed the need for greater recognition and expansion of activities among the partners in apprenticeship training: industry, training institutions, school units, provincial and federal governments. A number of these recommendations have been put into practice and several are still in the process of being implemented.

Secondary School Pre-apprenticeship Programs

P.E.I. is currently offering a number of school-to-work transition options under the **Cooperative Education Program**. Cooperative Education is the broad term covering all types of programs/courses in which high school students, while under the supervision of the school, are involved in work experiences at selected job sites in the community. The three components are Career Exploration Training (C.E.T.), Cooperative Work Study Training (C.W.S.) and Vocational Experience Training (V.E.T.). All involve some level of on-the-job experience, but only the latter is geared specifically, but not exclusively, to apprenticeable trades. See Appendix I for further details.

Regional Initiatives

P.E.I. is participating in the *Atlantic Canada Association of Directors of Apprenticeship and Board Chairpersons* study of methods to reduce barriers to employment mobility of tradespersons in the Atlantic provinces (see Newfoundland).

Apprenticeship Programs Available and Length of Time to Completion:

In P.E.I., designated trades are those in which apprenticeship training is offered. Most trades are "voluntary apprenticeship trades" which means that apprenticeship training is desirable but is not required to work in the trade. Three trades, motor vehicle mechanic, plumber, and electrician are "compulsory apprenticeship trades" for which apprenticeship training is mandatory.

Designated Trades

baker* - 3 years	motor vehicle mechanic (transmission) - 3 years
boilermaker* - 4 years	oil burner mechanic* - 3 years
bricklayer* - 3 years	painter and decorator* - 3 years
cabinet maker* - 4 years	plumber* - 4 years
carpenter* - 4 years	refrigeration & air conditioning mechanic* - 4 years
cook* - 3 years	roofer* - 3 years
drafting - 4 years	secretary - 3 years
electrician (construction)* - 4 years	service station mechanic - 2 years
electrician (industrial)* - 4 years	sheet metal worker* - 4 years
electronic technician (consumer products)* - 4 years	small equipment mechanic - 3 years
farm equipment mechanic - 4 years	sprinkler system installer* - 4 years
floor covering installer* - 3 years	steamfitter/pipefitter* - 4 years
glazier* - 4 years	truck and transport mechanic* - 4 years
hairstylist* - 4 years	welder* - 3 years
heavy equipment mechanic* - 4 years	
industrial equipment mechanic* - 4 years	
lineman* - 4 years	
machinist* - 4 years	
millwright* - 4 years	
motorcycle mechanic - 3 years	
motor vehicle body repairer* - 4 years	
motor vehicle mechanic* - 4 years	
motor vehicle mechanic (electrical and fuel) - 3 years	

* Red Seal Occupations

NEW BRUNSWICK

Administering Body

Apprenticeships are administered by the Department of Advanced Education and Labour, Apprenticeship and Occupational Certification.

Authority

Apprenticeships in New Brunswick operate under *The Apprenticeship and Occupational Certification Act*, last updated in 1993. The province offers 63 apprenticeship programs, 24 of which have Red Seal certification as an option.

Structure

Director of Apprenticeship

The Director of Apprenticeship and Occupational Certification is appointed by the Minister of Advanced Education and Labour. The Director maintains the register of apprentices and improvers (apprentices in non-designated trades), approves programs of study, provides courses of instruction for all training, provides for periodic tests and final examinations for certificates of qualification, supervises training, inspects and approves training facilities, approves courses of study in pre-apprenticeship courses, assists the Department of Education in developing courses for training at the secondary school level in pre-apprenticeship programs, carries out investigations as required by the Board, and makes recommendations on trades which should be designated or dedesignated.

Apprenticeship and Occupational Certification Board

The Apprenticeship and Occupational Certification Board is composed of five persons representing employers, five persons representing employees, one official of the Department of Labour, two officials of the Department of Advanced Education and Training (representing the linguistic division) and one independent person as chair. These individuals are appointed by the Lieutenant-Governor in Council. The Board has power to issue certificates of qualification, issue diplomas and hear appeals. The Board also advises the Lieutenant-Governor on designation of trades. The Board must hold a minimum of two meetings a year.

Program Advisory Committees

Program Advisory Committees in designated occupations or groups of occupations, made up of individuals appointed by the Minister, can be created to advise in matters relating to the establishment and operation of apprenticeship training programs and occupational qualifications. Program Advisory Committees have up to seven members, with equal numbers of representatives from employers and employees, and such officials from the Department of Advanced Education and Training as the Minister considers appropriate.

Local Apprenticeship Advisory Committees

Local Apprenticeship Advisory Committees in designated occupations or groups of occupations, are composed of individuals whom the Director of Apprenticeship and Occupational Certification considers appropriate to advise and assist on such matters as the promotion of apprenticeship training, eligibility of apprenticeship applicants, ratio of apprentices to journeypersons, grievances between employers and apprentices and potential cancellations. In partnership with the local colleges, these committees monitor and revise, as needed, training curriculum and examinations.

Testing and Certification

Testing takes place during the technical training component of the apprenticeship program. Examinations are devised by the technical training schools and are overseen and revised periodically by the appropriate Local Apprenticeship Advisory Committees and/or Program Advisory Committee. Examinations must also be approved by the Director.

Measurement/Evaluation of Product

The Director of Apprenticeship and Occupational Certification is responsible for inspecting and approving training facilities and general supervision of apprenticeships. He or she issues a report on an annual basis.

Recent Developments

The *New Brunswick Apprenticeship and Occupational Certification Act* was revised in 1989. The province is not currently involved in any wide-ranging reform or review programs in the area of apprenticeships. They are looking at and implementing some new designations for trades, and there are some structural changes taking place.

Regional Initiatives

New Brunswick is participating in the *Atlantic Canada Association of Directors of Apprenticeship and Board Chairpersons* study of methods to reduce barriers to employment mobility of tradespersons in the Atlantic provinces (see Newfoundland).

Secondary School Pre-apprenticeship Programs

New Brunswick offers two programs. The Occupational Training Accreditation System (NBOTAS) was established in 1982 and was designed to provide credit and advanced standing for persons completing specific courses in their high school programs and then choosing to enter a community college, or obtaining employment in an apprenticeable occupation.

It was introduced to eliminate unnecessary duplication of course work which may have occurred at the high school level when these persons continued into community college or apprenticeship. Today, this system is working in the training areas of carpentry, electrical, motor mechanic, welding, typewriting, and accounting.

In 1993, a joint effort between the Department of Education and the Department of Advanced Education and Labour initiated on a pilot basis, in several school districts with the intention to have it available on a provincial basis, the "**New Brunswick Youth Apprenticeship Program**".

The program provides the opportunity for high school students to gain approximately 360 hours of work experience in the area of their occupational choice. See Appendix I for further details.

Science and Technology Elements in Apprenticeship Training

The extent to which science and technology are included in apprenticeship courses is determined by the training institutions in consultation with the Program Advisory Committees and industry.

Apprenticeship Programs Available and Length of Time to Completion:

Designated Trades

barber - 2.5 years	motor vehicle mechanic (electrical and fuel) - 3 years
boilermaker (marine) - 4 years	motor vehicle mechanic (steering, suspension & brakes) - 3 years
bricklayer* - 3 years	motor vehicle mechanic (truck and transport)* - 4 years
cabinetmaker - 4 years	oil burner mechanic (residential)* - 4 years
carpenter* - 4 years	operating lineman* - 4 years
construction boilermaker* - 3 years	painter and decorator* - 3 years
construction electrician* - 5 years	plumber* - 4 years
construction lineman - 3 years	power system operator - 5 years
construction millwright - 4 years	production equipment mechanic - 4 years
cook* - 3 years	refrigeration and air conditioning mechanic* - 4 years
distribution construction lineman - 3 years	roofer* - 3 years
distribution system dispatcher - 3 years	service station attendant - 2 years
drafting (architectural) - 4 years	sheet metal worker* - 4 years
drafting (mechanical) - 4 years	ships plater - 5 years
electrical mechanic (electric utility) - 4 years	small equipment mechanic - 3 years
electric motor repairer - 4 years	sprinkler system installer* - 4 years
electronic servicing* - 4 years	staker/detailer - 2 years
engineering assistant - 3 years	stationary engineer (2nd class) - 4 years
enginefitter (marine) - 4 years	stationary engineer (3rd class) - 2 years
firefighter - 3 years	stationary engineer (4th class) - 1 year
heat and frost insulator - 4 years	steamfitter-pipefitter* - 4 years
heavy equip. mechanic* - 4 years	steel fabricator - 4 years
industrial electrician* - 4 years	survey technician (cartography) - 3 years
industrial instrument mechanic* - 4 years	survey technician (instrumentation) - 3 years
industrial mechanic* - 4 years	survey technologist - 5 years
joiner - 4 years	switchboard operator - 3 years
machinist* - 4 years	truck trailer repairer - 4 years
major appliance repairer - 3 years	water well driller - 3 years
marine electrician - 5 years	welder* - 3 years
motor vehicle body (painter) - 2 years	
motor vehicle body (repairer) - 2 years	
motor vehicle body (repairer and painter)* - 4 years	
motor vehicle mechanic (auto)* - 4 years	
motor vehicle mechanic (auto transmission) - 3 years	

* Red Seal Occupations

NOVA SCOTIA

Administering Body

Apprenticeships are administered by the Department of Advanced Education and Job Training, Industrial Training Services Division.

Authority

Apprenticeships in Nova Scotia operate under the *Apprenticeship and Trades Qualifications Act* of 1988. The province offers 29 apprenticeship programs, all of which offer Red Seal certification and Interprovincial Exams are used for provincial certification. By 1995, the provincial certification requirements will be equal to Red Seal requirements, so that all provincial certificate holders will have the Red Seal designation.

Structure

Director of Apprenticeship and Trades Qualifications

The Director of Apprenticeship and Trades Qualifications is appointed through the Nova Scotia Civil Service Act. The Director advises the Minister on matters covered by the Act, administers the apprenticeship registry, promotes interest in the role of apprenticeship in industry, plans and carries out programs of apprenticeship in designated trades, undertakes studies or investigations of trades and of the requirements for the supply and training of persons for those trades, supervises the training of apprentices, plans and supervises updating and upgrading programs, promotes the development of courses of study for training and instruction at the community college level in pre-apprenticeship programs, assists and advises the Provincial Apprenticeship Board in carrying out its duties and activities, and carries out responsibilities as assigned by the Minister.

Provincial Apprenticeship Board

The Provincial Apprenticeship Board is appointed by the Governor in Council, and consists of three or more individuals representing employers and an equal number representing employees, one or more members at large, and a person representing trades training in the province (non-voting). The duties of the Board include: determining and recommending to the Minister whether a trade is appropriate for designation; determining, in consultation with the director and trade advisory committees, the nature of every course of related technical instruction to be given an apprentice and establishing the duration of those courses; settling disputes arising from apprenticeship agreements; when requested by the Minister, reviewing and making recommendations on any area of apprenticeship training; in consultation with the Director and the appropriate trade advisory committee, evaluating and granting credits for trade experience and trades training claimed by apprentice applicants; providing for periodic trade tests and final examination of apprentices; in conjunction with the Director appointing and defining the duties of examining committees to conduct tests and examinations for

certification; and recommending to the Director the issuance of certificates and diplomas to apprentices who have completed their training and passed the necessary tests, and cancelling apprenticeship agreements for cause. The Board meets once a month, except during the months of July and August.

Trade Advisory Committees

Trade advisory committees are appointed by the Provincial Apprenticeship Board, in consultation with the Director of Apprenticeship. Where the advisory committee is established for an area or part of the province, it consists of not fewer than 3 members. When a committee is established for the entire province, when it represents a large and active trade or when more than one trade or group of trades is being brought together, it will consist of at least 5 members. The chairperson of each committee is designated by the Minister. The trade advisory committees act in an advisory capacity to the Provincial Apprenticeship Board.

Examining Committees

Tests at the conclusion of set periods of training and the final examination prior to certification are administered by examining committees appointed by the Board in conjunction with the Director.

Testing and Certification

Testing takes place during the in-class technical training component of the apprenticeship program. Examinations are devised by the Provincial Apprenticeship Board in conjunction with the Trade Advisory Committees and the Director of Apprenticeships. On the basis of the results of the final examination and the apprentice's completion of the work place component, the Board recommends to the Director the issuance of a certificate or diploma.

Measurement/Evaluation of Product

The Director submits an annual report on the progress of the apprenticeship system to the Minister, and the Provincial Apprenticeship Board presents a report every February to the Minister on the activities of the Board for the previous year, which is then tabled before the Assembly.

Recent Developments

The N.S. Department of Advanced Education and Training is currently undergoing a major over-haul. As a part of this process, all programs are being reviewed. Recent developments include a "spreading" of training to local communities rather than the traditional population centres. Nova Scotia has also, as of January 1st, 1994, moved to using Interprovincial (Red Seal) examinations for all trades certification. By 1995, the provincial pass mark will be the same as the pass mark for Red Seal certification. In conjunction with this, they have

established a Curriculum Advisory Committee, composed of college instructors, tradespersons and government representatives to review basic core training and provide input to examination question data banks. Currently this is being done in conjunction with New Brunswick, but eventually it is expected that these question banks will be incorporated into the ICEMS, the Red Seal data bank.

Regional Initiatives

Nova Scotia is participating in the *Atlantic Canada Association of Directors of Apprenticeship and Board Chairpersons* study of methods to reduce barriers to employment mobility of tradespersons in the Atlantic provinces (see Newfoundland).

Secondary School Pre-apprenticeship Programs

The Nova Scotia Department of Education is offering co-operative education programs in its secondary schools. The Department of Advanced Education and Training is considering a pre-apprenticeship program for high schools, but has not begun to study the area seriously.

Science and Technology Elements in Apprenticeship Training

The extent to which science and technology are included in apprenticeship courses is determined by the training institutions, which change and upgrade those elements according to industry demand.

Apprenticeship Programs Available and Length of Time to Completion:

In Nova Scotia, designated trades are those in which apprenticeship training is offered. Most trades are "voluntary apprenticeship trades" which means that apprenticeship training is desirable but is not required to work in the trade. Seven trades are "compulsory apprenticeship trades" for which apprenticeship training is mandatory. Since the province is now using the Interprovincial Examination, all trades have the option of Red Seal certification, and by 1995, all trade examinations will require Red Seal level achievement as well.

Designated Trades

boilermaker - 3 years	painting and decorating - 3 years
bricklayer [†] - 4 years	plumbing [†] - 5 years
cook - 3 years	refrigeration and air conditioning [†] - 4 years
carpenter - 4 years	restoration stone mason - 4 years
electrical construction [†] - 4 years	roofing - 3 years
farm equipment mechanic - 4 years	sheet metal - 4 years
industrial electrical - 4 years	sprinkler fitter - 4 years
industrial instrumentation - 4 years	stationary engineer [†] - 4 years
industrial mechanic - 4 years	steamfitting - 5 years
lineman - 4 years	tool and die maker - 4 years
machinist - 4 years	welding - 3 years
marine fitter - 4 years	
metal fabricator - 4 years	
motor vehicle repair (body) - 4 years	
motor vehicle (bus & transport) [†] - 4 years	
motor vehicle repair (heavy duty) - 4 years	
motor vehicle repair (mech.) - 4 years	
oil burner mechanic [†] - 4 years	

[†] compulsory apprenticeship trade

QUÉBEC

The apprenticeship system in Quebec differs significantly from those of other provinces. In Quebec, individuals interested in entering trades must complete an in-class, pre-employment training program at a community college, CEGEP or high school with a vocational option prior to becoming apprentices. This means that, in many cases, the financial burden of in-class training and income support falls on the individual, although student loans can be accessed to help pay for post-secondary training. Individuals who enroll in trades training or upgrading courses while receiving unemployment insurance benefits may get income support while going to school. Once a prospective apprentice has completed this pre-employment training, he or she is required to find an employer who will provide a guarantee of employment. Quebec does not indenture apprentices through contracts as is done in other provinces, but instead issues a certificate of apprenticeship, which allows the individual to work in the trade as an apprentice. Once the certificate is obtained, the apprentice must fulfil a set number of hours of on-the-job experience, usually between 4,000 to 10,000 hours (in-class experience obtained in pre-employment or night courses at CEGEPs or secondary schools counts toward this total), to qualify to write the journeyperson exam. No additional in-class training is required, although additional courses taken at CEGEPs or vocational high schools are recommended. Traditionally, unions have had a great deal of control in apprenticeship training, particularly in the construction trades, in terms of wages, numbers of apprentices hired and apprentice/journeyperson ratios, however Quebec has recently moved to de-regulate many of its trades, leading toward more of a free market for trades labour.

Administering Bodies

In the construction trades, administration of apprenticeships is carried out by the Commission de la construction du Québec. Non-construction apprenticeships are administered by the Société québécoise de développement de la main-d'œuvre which took over training and workforce development responsibility from the Ministère de la Main-d'œuvre et de la sécurité du revenu in 1994, much the same way as the Ontario Training and Adjustment Board did in Ontario in 1993 (see next section).

Authority

Apprenticeships in Quebec operate the *Manpower Vocational Training and Professional Qualification Act* - Section F-5 r.3 deals with non-construction and F-5 r.4 covers construction trades. Quebec offers 27 apprenticeship programs. Red Seal certification is offered in 14 trades, however up until 1994 interest in interprovincial certification by Quebec trades people has been quite low according to provincial officials. The Red Seal program is administered by the Société.

Testing and Certification

Qualification examinations for journeyperson certification are administered by the Commission de la Construction du Québec for construction trades and the Société québécois de développement de la main-d'œuvre for non-construction trades. Both prepare the examinations in cooperation with a special advisory committee established in pursuance of the Act. The Société also reviews the training of each apprentice at the completion of each 2,000 hours of training to ensure that skills and experience necessary to meet the requirements of the journeyperson examination are being gained. Officials from the Société may suggest that the apprentice take night courses or even consider a new employer if, during these reviews, they find that training requirements are not being met. In-class examinations, taken during initial, pre-employment training at vocational high schools or CEGEPs, are developed and administered by those institutions.

Recent Changes

Interprovincial agreements to increase the mobility of labour between Quebec and its neighbouring provinces have led recently to the deregulation of a number of construction trades. Whereas in the past all individuals involved in the construction trade had to belong to unions, deregulation has opened the door for workers who are not union members to work in the province. In non-regulated trades, workers not only have the choice of working without union membership, but apprenticeship is voluntary rather than mandatory. This change will bring Quebec trades more into line with neighbouring provinces and will also allow workers from other provinces more freedom to work in Quebec. The deregulation process, and the resulting opening up of the trades labour market, should, according to provincial officials, increase interest in the Red Seal program among Quebec tradespeople.

Apprenticeship Programs Available and Length of Time to Completion

In Quebec, most trades are now "non-regulated" trades, which means that apprenticeship training and journeyperson certification is desirable but not required to work in the trade. In regulated trades, a certificate of apprenticeship or journeyperson status is mandatory.

Construction Trades

boilermaker* - 6,000 hours
 bricklayer* - 8,000 hours
 carpenter/joiner* - 6,000 hours
 cement finisher - 4,000 hours
 construction electrician*[†] - 8,000 hours
 crane operator - 1,000 hours
 elevator installer[†] - 10,000 hours
 floorcovering installer* - 6,000 hours
 glassworker - 8,000 hours
 heavy machinery mechanic* - 8,000 hours
 ironworker - 6,000 hours
 industrial millwright* - 8,000 hours
 insulator - 6,000 hours
 lather - 6,000 hours
 painter* - 6,000 hours
 plumber*[†] - 8,000 hours
 refrigeration & air conditioning mechanic*[†] - 8,000 hours
 reinforcing steel erector - 6,000 hours
 roofer* - 6,000 hours
 sprinkler installer*[†] - 8,000 hours
 steamfitter/heating installer*[†] - 8,000 hours
 sheet metal worker* - 8,000 hours
 welder - 6,000 hours

Non-construction Trades

electrical machinery operator - 500 to 2,000 hours (depending on specialty)
 electrician* - 8,000 hours
 pipefitter - 6,000 hours
 elevator mechanic - 6,000 hours

* Red Seal certification available.

[†] Indicates regulated trade

ONTARIO

Administering Body

Apprenticeships are administered by the Ontario Training and Adjustment Board.

Authority

Ontario's apprenticeship system operates under the *Trades Qualification Act* of 1990. The province offers 69 regulated apprenticeship programs, 29 of which have Red Seal certification options.

Structures

Training Specific

Ontario Training and Adjustment Board

The former Apprenticeship Branch for the Ministry of Skills Development, as well as other relevant government bodies have been transferred to the new Board to become an arm's length agency. The Board is composed of 23 members: 8 representatives from business, 8 from labour, 2 representing the interests of educators and trainers, one individual each representing the interests of target disadvantaged groups (women, minorities, the disabled, francophones, and aboriginal peoples). The Board is mandated to take over the work of 25 separate training programs which were previously administered by 10 different provincial ministries. These include apprenticeships, school-to-work initiatives, retraining of the unemployed, and other programs. Specific roles and structures are still to be determined for the Board.

Local Training and Adjustment Boards

The OTAB will eventually link with 22 local boards, still to be established, which are made up of business, labour, equity groups, and government representatives. These boards are to direct training programs on a regional basis. Board members are chosen from representatives of the labour, education, business and target (i.e. under-represented) sectors. The specific role(s) of the local boards is still being determined.

Apprenticeship Specific

Ontario Director of Apprenticeship

The Ontario Director of Apprenticeship, still to be appointed, will continue to be a government official and be head of the Apprenticeship and Client Services Branch. Directors are appointed by the Minister of Education and Training.

Provincial Advisory Committees

Appointed by the Minister, Provincial Advisory Committees may be established for any trade or group of trades. Currently there are approximately 35 of these bodies in existence. They are composed of equal numbers of representatives from employees and employers, usually between 10 and 16 individuals. The committees provide advice to the Minister and/or the OTAB; recommend changes to curricula and standards; nominate individuals to undertake reviews and updates of curricula and examinations; and validate the resulting reports.

Testing and Certification

Testing takes place upon completion of the apprenticeship program. Examinations are devised and revised periodically by individuals appointed from the Provincial Advisory Committees and are overseen by the Committees and the Apprenticeship and Client Services Branch of OTAB.

Measurement/Evaluation of Product

A yearly internal report is submitted by the Director of Apprenticeship to the Board. The Board will report to the Minister concerning apprenticeships, however the structure for this relationship has not yet been determined. In the past (in 1989 for example), the Ministry of Skills Development has conducted occupation-specific studies to determine future labour needs in the trades, as well as long term results of journeyman certification, for instance, whether tradespeople were still employed in their area.

Recent Developments

Recently, in September, 1993, Ontario announced the creation of the Ontario Training and Adjustment Board (OTAB). The original recommendation for this organization was part of the Premier's Council Report *People and Skills In The New Global Economy* released in 1990. This document took a wide-ranging look at Ontario's human resource situation, including the education and training sectors. OTAB was the centre piece of its recommended changes to the apprenticeship system, which the study had found to be "antiquated" and "incapable of meeting the needs of the economy". The first meeting of OTAB was held in October, 1993. That meeting dealt with establishing bylaws and strategic goals for the Board. A sub-committee or advisory council body to review Ontario's apprenticeship program is envisaged, but has not yet been struck. Despite some early problems, this body now has the power to make decisions and form training policy.

The OTAB will continue to proceed with programs such as the school-to-work initiative (SSWAP), support for laid off apprentices and employment equity programs, but no fundamental review or reform is envisaged in the immediate future.

Secondary School Pre-apprenticeship Programs

In response to the growing demand for skilled tradespeople, a program has been developed co-operatively by the Ministry of Education and the Ministry of Skills Development that allows students to work concurrently towards earning both an Ontario Secondary School Diploma (OSSD) and apprenticeship credits. Students who are at least 16 years old and who have completed the grade 10 apprenticeship requirements are eligible for enrolment in this program. For a three-year period, students attend school for the equivalent of two days per week and work as a registered apprentice for the equivalent of three days per week. They will be considered both a full-time student and a full-time employee. Since boards will receive grants based on the student's being full-time, Ministry of Education and Training (MET) approval of the program must be obtained before operating a program. Ontario Training and Adjustment Board (OTAB), Apprenticeship and Client Services Branch (ACSB) approval is required for the apprenticeship portion of the program. See Appendix I for further details.

Science and Technology Elements in Apprenticeship Training

Until 1993, Ontario had offered a Trades Updating Program. This program offered workers in skilled trades, holding a valid Ontario Certificate of Apprenticeship and journeypersons with an Ontario Certificate of Qualification or, in the voluntary trades, equivalent work experience, full and part-time courses aimed at upgrading their skills to keep up with new technologies. Courses lasted between 30 and 90 hours and were offered at a college of applied arts and technology or in the workplace through employers, employer associations, and unions. Certificates were awarded upon successful completion of the training. Trades updating was eliminated in 1993.

Apprenticeship Programs Available and Length of Time to Completion

In Ontario, there are 69 regulated trades in which apprenticeship training is offered. The majority of trades are "voluntary apprenticeship trades" which means that apprenticeship training is often required by unions or employers but is not required by law to work in the trade. Nineteen trades are "compulsory apprenticeship trades" for which apprenticeship training is mandatory.

Regulated Trades

Compulsory

alignment and brake mechanic - 3 years
 auto body & collision damage repairer*
 - 4 years
 auto body repairer - 2.5 years
 electrician (constr. & maint.)* - 4.5 years
 electrician (domestic and rural) - 3.5 years
 fuel and electrical systems mechanic
 - 2.5 years
 hairstylist* - 2.5 years
 mobile crane operator (1) - 3 years
 mobile crane operator (2)* - 3 + 1 years
 motorcycle mechanic - 3 years
 motor vehicle mechanic - 4.5 years
 plumber* - 4.5 years
 refrigeration & air conditioning mechanic*
 - 4.5 years
 sheet metal worker* - 4.5 years
 steamfitter* - 4.5 years
 tower crane operator - 2 years
 transmission mechanic - 3 years
 truck trailer repairer* - 3 years
 watch repairer - n/a

Voluntary

arborist - 2 to 3 years
 air-cooled and marine engine mechanic
 - 2 years
 assistant cook - 1 year
 automatic machinist - 4 years
 automotive machinist - 4 years
 automotive painter* - 2 years

baker* - 3 years
 boat motor mechanic - 3.5 years
 brick and stone mason* - 3 years
 cement mason* - 3 years
 construction boilermaker* - 3.5 years
 construction millwright - 4 years
 cook* - 3 years
 dry cleaner - n/a
 farm equipment mechanic - 4.5 years
 fitter (structural steel/platework)* - 3 years
 general carpenter* - 2 to 3.5 years
 general machinist* - 3 to 4 years
 glazier and metal mechanic* - 4 years
 heavy duty equipment mechanic*
 - 4.5 years
 horticulturalist (landscaper/greenskeeper)
 - 2.5 years
 horticulturalist (nursery greenhouse worker)
 - 2.5 years
 industrial electrician* - 4.5 years
 industrial mechanic (millwright)* - 4 years
 industrial woodworker - 4 years
 ironworker* - 3 years
 junior baker - 1 year
 lather* - 3 years
 lineworker - construction* - 3.5 years
 lineworker - power - 4 years
 marine and small powered equipment
 mechanic - 2 years
 mould maker - 4 years
 painter and decorator*
 (commercial/residential) - 3 years
 painter and decorator (industrial) - 3 years
 patissier - 4 years

Voluntary - continued

plasterer - 3.5 years
pattern maker - 4 years
printer (compositor) - 4 years
printer (compositor - photo typesetter)
 - 4 years
printer (comp. & camera tech.) - 4 years
printer (letter press) - 4 years
printer (letter press - job shop) - 4 years
printer (linotype operator) - 4 years
printer (lithography - job shop) - 4 years
printer (offset print operator) - 4 years
radio and television service technician*
 - 4 years
small engine mechanic - 2 years
sprinkler and fire protection installer*
 - 4 years
tool and die maker* - 4 years

* Red Seal Occupations

MANITOBA

Administering Body

Apprenticeships are administered by the Department of Education and Training, Advanced Education and Skills Training Division, Apprenticeship Branch.

Authority

Apprenticeships in Manitoba operate under *The Apprenticeship and Trades Qualifications Act*, established in 1987. The province offers 44 apprenticeship programs, 26 of which have Red Seal certification options.

Structure

Director of Apprenticeship

The Director of Apprenticeship is appointed from the public service by the Minister. The Director advises the Minister on matters covered by the Act, carries out duties assigned by the Act or regulations, assists and advises the Provincial Apprenticeship Board in carrying out its duties and activities, and carries out responsibilities as assigned by the Minister.

Provincial Apprenticeship Board

The Manitoba Provincial Apprenticeship Board makes recommendations to the Director of Apprenticeship respecting regulations, the designation or dedesignation of trades, the recognition of sub-trades, and hears appeals to decisions of the Director. It consists of nine or more members, appointed by the Lieutenant Governor in Council, who also chooses a chairperson. The membership of the Board must include equal representation of employers and employees, as well as one or more representative of the Department of Education.

Trade Advisory Boards

Every designated trade has its own trade advisory board, made up of an equal number of representatives from employers and workers who are appointed by the Minister of Education. The trade advisory board: provides guidelines for the establishment of trade experience and training requirements and the granting of credit and advanced standing; assists in the development and revision of apprenticeship programs; and assists in the development and revision of examinations. It makes recommendations to the director on new regulations or amendments to existing ones, ratio of journeypersons to apprentices and the status of trades as voluntary or compulsory.

Recent Changes

Manitoba is currently undertaking a revitalization and modernization of their apprenticeship structures. Areas which are to be examined include: updating curricula; meeting the needs of industry; updating college delivery of courses; developing high school pre-apprenticeship programs, and increasing aboriginal apprenticeships. Consultation is beginning with wide participation expected. Considerable support is being given to the provincial government's apprenticeship branch, with additional funding and personnel resources being allocated. Manitoba has been offering upgrading to journeypersons for several years as part of a life long learning initiative. The province is also involved in the Red Seal trades examination question bank (ICEMS).

Secondary School Pre-apprenticeship Programs

Manitoba runs a number of adult pre-apprenticeship programs through its training institutions. It is currently studying a proposal for the establishment of a secondary school pre-apprenticeship program based on the Alberta model. The proposal has been under consideration for some time, but a lack of resources and demands of other priorities has kept it from progressing to a point where implementation is being considered. It is proposed that the indenturing of students at the high school level be a part of this program.

Science and Technology Elements in Apprenticeship Training

Manitoba has been offering trades upgrading to journeypersons for several years in its Workforce 2000 initiative. This program is offered through training institutes, often on a evening/weekend basis. Technology upgrading for the 21st century is a particular focus of this program. It is up to the training institutes, in conjunction with the Provincial Apprenticeship Board and local trade advisory boards, however, to determine the extent to which science and technology are included when upgrading courses and in initial apprenticeship training. In some trades, auto mechanics for example, where technology is changing quickly, technology and science play a greater role in training compared to trades where changes occur more slowly, such as bricklaying.

Apprenticeship Programs Available and Length of Time to Completion

In Manitoba, designated trades are those in which apprenticeship training is offered.

aircraft maintenance engineer technician - 4 years	partsperson [†] - 3 years
automotive machinist [†]	plumber* - 5 years
baker [†]	power electrician - 4 years
boilermaker* - 3 years	refrigeration & air conditioning mechanic* - 4 years
bricklayer* - 4 years	roofer - 3 years**
cabinetmaker* - 4 years	sheeter, decker and cladder**
carpenter* - 4 years	sheet metal worker* - 4 years
construction electrician* - 4 years	sprinkler & fire protector* - 4 years
consumer electronics technician [†]	steamfitter/pipefitter* - 4 years
cook* - 3 years	steel fabricator [†] - 4 years
crane operator* [†]	tool and die maker* - 4 years
drywall mechanic - 3 years	
electric motor winder - 4 years	
esthetician [†]	
hairstylist* [†]	
heating, ventilation, air conditioning, testing and balancing [†]	
heavy duty equipment mechanic* - 4 years	
industrial electrician* - 4 years	
industrial instrument mechanic* - 4 years	
industrial mechanic (millwright)* - 4 years	
industrial welder* - 3 years	
interior systems mechanic* [†]	
ironworker [†]	
landscape technician - 4 years	
lather - 4 years	
machinist* - 4 years	
miner [‡] - 3 years	
motor vehicle body painter* - 2 years	
motor vehicle body repair* - 4 years	
motor vehicle mechanic* - 4 years	
mould and pattern maker - 4 years	
painter and decorator* - 4 years	

* Red Seal Occupations ** Certification only, no in-school technical training available

[†] Under development [‡] Not currently available

SASKATCHEWAN

Administering Body

The Apprenticeship and Trade Certification Program in Saskatchewan is administered by the Saskatchewan Education, Training and Employment, Labour Market Development, Apprenticeship and Trade Certification Unit.

Authority

The program operates under *The Apprenticeship and Trade Certification Act*, which came into force on September 1, 1986. The province offers 39 apprenticeship programs, 32 of which have Red Seal certification options.

Structure

Director of Apprenticeship and Trade Certification

The Director of Apprenticeship and Trade Certification is responsible for the administration of the Act and regulations and ensuring that Saskatchewan's apprentices, journeypersons and tradespersons are equipped with the necessary skills, knowledge and attitudes to function effectively in the workplace. To accomplish this end, the Director and the Apprenticeship and Trade Certification Unit: develops, administers and promotes the Apprenticeship and Trade Certification Program; provides counselling and consultative services to apprentices, journeypersons, tradespersons and employers at the job site and in the trade centres; liaises with industry, training institutions, various trade organizations and other government agencies to maintain effective and efficient programs and services; participates in the development and implementation of the Interprovincial "Red Seal" Program; develops, implements and administers the provincial upgrading programs; establishes and develops standards, curricula and examinations for journeyperson certification; and assists industry in developing their presentations for the designation of new trades.

Provincial Apprenticeship Board

The Saskatchewan Provincial Apprenticeship Board (PAB) is made up of equal numbers of employers and workers. The PAB meets approximately four times each year to give overall direction for programs. The Board: acts in an advisory role to the director; makes recommendations to the department respecting the designation of trades and subtrades, on alterations to regulations, and other matters relating to the Act and regulations; and may hear appeals of persons aggrieved by a decision of the director. The Board is involved with other government agencies regarding funding and the direction of training in the future. The chairperson of the Board is a member of the Western Alliance of Apprenticeship Board Chairmen, which was established to develop and foster provincial and territorial cooperation and identify western regional needs concerning training and mobility.

Trade Advisory Boards

Each designated trade has its own Trade Advisory Board (TAB), consisting of equal representation from employers and workers, and an individual from the Apprenticeship and Trade Certification unit. These Boards meet annually and have a wide range of responsibilities which include: establishing guidelines for the evaluation of trade experience and the granting of credit; assisting in the identification of program content and examination validation; recommending changes to regulations to reflect current industry needs; determining if a workplace provides sufficient overall exposure for apprenticeship training; evaluating the need for training and types of certification in each trade; determining transfer credits for individuals who have experience in other trades; and advising on matters relating to the administration of the Act and regulations as they apply to each trade or sub-trade.

Curriculum and Examination Development Boards

Curriculum and Examination Development Boards (CEDB) are established to develop training curricula and certification examinations for specific trades. These Boards often include members of the Trade Advisory Board. The Boards are chaired by a curriculum officer from the Apprenticeship and Trade Certification Unit and report to the Trade Advisory Board for their trade. CEDBs are comprised of equal representation of employers and workers from the trade. They meet on an "as needed" basis. The main function of these boards is to assist in the: development and revision of the apprenticeship curriculum for their trade to reflect industry needs; development and revision of the curriculum for upgrading and updating of training courses; development and revision of all journeyperson proficiency, placement (to determine the level an individual with prior experience or training), or term-end examination for their trade; and development and validation of interprovincial journeyperson examination for their trade.

Trade Examining Boards

Trade Examining Boards (TEB) are chaired by an individual from the Apprenticeship and Trade Certification Unit and consist of representatives of both employers and workers. Board duties include the evaluation of "trade time" (work experience) for individuals applying for examination or progressing through an apprenticeship program and, in those trades which require them, evaluation of individuals taking practical exams. The decisions of the TEBs determine the eligibility of a candidate to challenge a journeyperson examination and determining when an apprentice can advance to the next apprenticeship level, which can effect salary ranges and eligibility to attend technical training.

Joint Training Committees

The Minister may recognize a joint training committee for a designated trade when he or she is satisfied that it is properly constituted, consisting of employers or their representatives and employees or bargaining agents, and that it is appropriate to do so.

Testing and Certification

The Trade Examining Board is responsible for the inspection of apprentices, including design (with the advice of the Provincial Apprenticeship Board) and administration of tests to determine the progress of apprentices, and a test or tests to determine his or her status prior to the granting of certification. The Lieutenant Governor in Council, on the advice of the Minister, prescribes the qualifications necessary for an apprentice or tradesperson to work in any designated trade, and respecting educational courses to be taken and experience to be acquired in a designated trade.

Measurement/Evaluation of Product

An annual report is submitted to the Minister providing information on program accomplishments for the year.

Recent Developments

The Saskatchewan Provincial Apprenticeship Board recently recommended the designation of the horticulturalist technician trade and the floor covering installer trade. The Apprenticeship and Trade Certification Unit is currently looking at new initiatives in non-traditional areas. They are presently working with the hog producers who are interested in designating their occupation as a trade.

A special equity initiative recently undertaken was an extended level one apprenticeship carpenter course for people of visible minorities in Canada. These courses include language training along with the usual level one carpenter training.

Apprenticeship training for aboriginal people is being delivered on the reserves and in northern locations in an effort to increase the participation of aboriginal people in apprenticeship programs and the trades.

Secondary School Pre-apprenticeship Programs

Three different pilot projects for high school apprenticeship have been implemented in Saskatchewan during 1993/94. Programs have been initiated in the towns of LaRonge and Nipawin, as well as in the Eston-Elrose School Division. High school students enrolled in these programs are eligible to receive high school credits, advance standing for apprenticeship technical training, and trade experience credits on successful completion.

The initiative at the Senator Myles Venne School in LaRonge has strong community support and offers students the opportunity to gain experience in the carpenter trade working for the LaRonge Band Construction Company.

The program at Nipawin's L.P. Miller Comprehensive High School is a locally initiated course in the Automotive Technician trade where graduating students receive an exemption from level one apprenticeship technical training.

The Eston-Elrose School Division has arranged with the Saskatchewan Institute of Science and Technology, Palliser Institute to deliver technical training to high school students. These students receive an exemption from level one apprenticeship technical training as well as credit for trade experience in the carpenter, cook and motor vehicle body repair trades.

Science and Technology Elements in Apprenticeship Training

Updating courses have been offered in Saskatchewan since 1986. These courses are designed to provide certified journeypersons with training in areas of their trades affected by technological change. A non-profit third party coordinating body, the Apprenticeable Trades Coordinating Group (ATCoG), has been established by the Provincial Apprenticeship Board to access funding from the federal government for these courses. Updating courses are usually delivered by the Saskatchewan Institute of Applied Science and Technology, however some courses are delivered by private vocational schools.

Apprenticeship Programs Available and Length of Time to Completion

In Saskatchewan, designated trades are those in which apprenticeship training is offered. Most trades are "voluntary apprenticeship trades" which means that apprenticeship training is desirable but is not required to work in the trade. Four trades (electrician, plumber, sheet metal worker, and refrigeration mechanic) are "compulsory apprenticeship trades" for which apprenticeship training is mandatory.

Designated Trades

agricultural machinery technician*	plasterer - 3 years
- 4 years	plumber* - 5 years
aircraft maintenance engineer technician	power lineman* - 4 years
- 4 years	refrigeration mechanic* - 4 years
barber-stylist [†] - 2 years	roofer* - 3 years
boilermaker* - 3 years	sheet metal worker* - 4 years
bricklayer* - 4 years	sprinkler system installer* - 4 years
carpenter* - 4 years	steamfitter-pipefitter* - 5 years
cement finisher* - 3 years	steel fabricator* - 3 years
cook* - 3 years	tilesetter - 4 years
cosmetologist* [†] - 2 years	truck & transport mechanic* - 4 years
crane and hoist operator* - 4 or 4.5 years	welder* - 3 years
drywall & acoustical mechanic* - 4 years	
electrician* - 4 years	
electronic technician (consumer goods)*	
- 4 years	
floor covering installer* - 3 years	
glassworker* - 4 years	
heavy duty equipment mechanic* - 4 years	
horticultural technician - 4 years	
industrial instrument mechanic* - 4 years	
industrial mechanic (millwright)* - 4 years	
ironworker (rebar) - 3 years	
ironworker (structural)* - 3 years	
insulator - 4 years	
machinist* - 4 years	
motor vehicle body repairer* - 4 years	
motor vehicle mechanic* - 4 years	
painter and decorator* - 3 years	
partsperson* - 3 years	

* Red Seal Occupations

[†] An individual must complete a pre-employment training program (offered at private training institutes) and obtain a licence from the province in order to begin work as apprentices in these trades.

ALBERTA

Administering Body

Apprenticeships are administered by the Department of Advanced Education and Career Development, Apprenticeship and Industry Training Division.

Authority

Apprenticeships in Alberta operate under *The Apprenticeship and Training Act*, established in 1991. The province offers 52 apprenticeship programs, 36 of which have Red Seal certification options.

Structure

Executive Director

The Executive Director of the Apprenticeship and Industry Training Division is appointed by the Minister of Advanced Education and Career Development. The Director advises the Minister on matters covered by the Act, carries out duties assigned by the Act or regulations, assists and advises the board in carrying out its duties and activities, carries out responsibilities as assigned by the Minister and is the Alberta member of the Canadian Council of Directors of Apprenticeship.

Alberta Apprenticeship and Industry Training Board

The board is composed of 13 members: a presiding officer, 8 members who represent trades, and 4 members representing industries other than trades. These members are appointed by the Lieutenant-Governor on the recommendation of the Minister of Advanced Education and Career Development. The board makes recommendations to the Minister about the needs of the Alberta labour market for skilled and trained workers, the training and certification of persons in trades, and the designation, change of designation, or rescinding of designation of trades and other occupations. It also develops policies about recognizing training equivalencies, makes regulations for the Minister's approval about designated trades and designated occupations, appoints members to Provincial and Local Apprenticeship Committees, and prepares an annual report for the Minister to present to the legislature.

Provincial Apprenticeship Committees (PACs)

Each designated, apprenticeable trade has a Provincial Apprenticeship Committee (PAC), with a minimum of 9 and a maximum of 21 members, all appointed by the board. Each PAC must have a presiding officer and members who represent employers and employees in equal numbers. Members are expected to be associated with and knowledgeable about the designated trade. Responsibilities of the PACs include: identifying training needs and content for their trade; recommending standards for training and certification in their trade;

monitoring the activities of Local Apprenticeship Committees (LAC); making recommendations about designations and changes to designations within their trades to the Board; determining accreditation of out-of-province training and work experience; and helping to resolve disputes between employers and employees.

Local Apprenticeship Committees (LACs)

Most apprenticeable trades in Alberta have a network of local apprenticeship committees composed of a minimum of 5 members, appointed by the Board. A presiding member and equal representation from employers and employees is required. Members are expected to be associated with and knowledgeable about the designated trade. Responsibilities of the LAC include monitoring apprenticeship programs and the progress of apprentices, making recommendations about apprenticeship and certification to the PAC, making recommendations about the appointment of PAC members, and helping to resolve any disputes between employers and employees.

Testing and Certification

Testing takes place during the in-class technical training component of the apprenticeship program. Examinations are devised by the provincial apprenticeship committees for each trade and undergo regular review and revision. In some trades, instrument mechanic for example, there is also an apprenticeship entrance examination.

Measurement/Evaluation of Product

In addition to quarterly and annual statistical reports, the Executive Director of the Apprenticeship and Industry Training Division submits a *Monthly Statistical Review and Activities Report* to the Apprenticeship and Industry Training Board. Statistics are also produced in *The Alberta Apprenticeship and Industry Training Board Annual Report*. Most of the data contained in these two reports are confined to simple head-counts such as number of apprentices entering trades this year compared to numbers last year and number of females entering programs. The Apprenticeship and Industry Training Board has overall responsibility for determining the success of apprenticeship training programs.

The Executive Director also produced, in 1993, a document entitled the *Apprenticeship Long Range Follow-up Case Study* which examined 291 journeypersons who had been certified for 5, 10 and 15 years.

Recent Developments

In 1991, the *Manpower Development Act*, which governed apprenticeships, was analyzed and rewritten as the *Apprenticeship and Training Act*. The introduction of new legislation was part of a reform initiative aimed at helping Alberta employers and workers to become competitive through the provision of, and support for, high quality skill development. The

new legislation provides a framework with sufficient flexibility to accommodate both the current and future training needs of Albertans.

The new Act came into effect in 1992. A major change in the legislation is the provision of training and certification programs in occupations not currently designated. The purpose is to widen the focus of training opportunities by expanding the apprenticeship model into a broad range of occupations not traditionally served by apprenticeship. This gives Alberta the flexibility to respond in a less regulated manner to rapid changes that are occurring in industry due to new technologies and emerging occupational fields.

Also, the new legislation has tightened up the requirements for obtaining an Alberta Journeyman Certificate. In the past, anyone who could show a prescribed amount of experience in a trade was able to obtain a certificate by challenging the journeyman examination. Under the new legislation, only those who have completed their apprenticeship training in Alberta can receive the Alberta certificate. Those who hold certification from outside of the province may apply for an equivalency assessment. If the applicant is deemed to have equivalent credentials, a document recognizing that equivalency is issued. Holders of the interprovincial Red Seal certification continue to be recognized as meeting all requirements to work in Alberta. As well as allowing for the recognition of equivalencies between in and out-of-province certification, the legislation includes provisions for the recognition of previous training and experience for the purpose of granting credit toward apprenticeships. This enhances access to the system and provides the opportunity for greater regional, national and international mobility of tradespersons.

The new legislation also calls for an increased role for industry in the development and operation of apprenticeship programs. The Alberta Apprenticeship and Industry Training Board and the trade committees are all chaired by individuals from the private sector. The Board has, as a result of the new legislation, the authority to make regulations governing the standards for training and the requirements for certification of persons in trades and other occupations. The new legislation emphasizes the monitoring of training and includes provisions to enable industry to become more involved in this area.

Alberta has also recognized the need for programming that is responsive to worker and employer needs and initiated several innovative approaches to the delivery of training. A competency based format of delivering apprenticeship technical training is currently being piloted as well as a day release program which will allow apprentices to complete their in-school training without any interruption to their regular employment.

Secondary School Pre-apprenticeship Programs

The Registered Apprenticeship Program (RAP) for senior high school students is offered by the Alberta Advanced Education and Career Development, Apprenticeship and Trade Certification Branch in conjunction with Alberta Education, Curriculum Branch. Its purpose is to improve the school to workplace transition; to offer students the chance to attend high

school and train as a registered apprentice at the same time; to encourage students to stay in school and obtain a diploma or certificate; and to allow students to complete credits for a diploma or certificate and gain work experience toward a journey person qualification. To be eligible students should be working toward the completion of all credits required for an Alberta High School Diploma or Certificate of Achievement, meet the grade entrance requirement for the selected trade, or pass the trade entrance examination. See Appendix I for further details.

Science and Technology Elements in Apprenticeship Training

Alberta offers journeyman updating courses at institutes and colleges which offer apprenticeship training. These short duration courses are intended for certified journey persons to enable them to keep up to date in areas of their trade affected by technological change. Also, the trade committees regularly review the apprenticeship curriculum to ensure that training remains current with changing technology. The extent to which the curriculum in a trade focuses on the areas of science and technology varies among trades and depends upon the trade committees that identify course content and the training establishment responsible for delivering the in-class component of the program.

Apprenticeship Programs Available and Length of Time to Completion

The compulsory designation indicates that an individual must have a Journeyman Certificate or Equivalency Certificate, if their training and experience has been obtained outside of the province, or be an apprentice to work in these trades in Alberta. In optional trades individuals may work in the area without a Journeyman Certificate but the individual must obtain an equivalency certification from Alberta recognizing previous training or experience. Anyone working in an Optional/Qualification trade without these requirements must become an indentured apprentice.

Compulsory Trades

appliance serviceman - 3 years
 auto body mechanic* - 3 years
 boilermaker* - 3 years
 crane and hoisting equipment operator* - 1-3 years
 electrician* - 4 years
 electronic technician* - 4 years
 elevator constructor**
 gasfitter* - 3 years
 hairstylist* - 2 years
 heavy duty mechanic* - 4 years
 ironworker* - 3 years
 motorcycle mechanic* - 4 years
 motor mechanic* - 4 years
 plumber* - 4 years
 recreational vehicle mechanic - 2 years
 refrigeration and air conditioning mechanic* - 4 years
 sheet metal worker* - 4 years
 steamfitter-pipefitter* - 4 years
 welder* - 3 years

Optional Trades

agricultural mechanic - 2 years
 baker* - 3 years
 bricklayer* - 3 years
 cabinetmaker* - 4 years
 carpenter* - 4 years
 cement finisher* - 3 years

communication electrician - 4 years
 cook* - 3 years
 electrical rewind mechanic - 4 years
 floorcovering installer* - 2 years
 glassworker* - 4 years
 instrument mechanic* - 4 years
 insulator* - 4 years
 landscaper gardener - 4 years
 lather-interior systems mechanic* - 3 years
 locksmith†
 machinist* - 4 years
 millwright* - 4 years
 painter and decorator* - 3 years
 partsman* - 3 years
 plasterer†
 power lineman* - 3 years
 power system electrician - 4 years
 printing and graphic arts craftsman - 4 years
 projectionist†
 roofer* - 3 years
 sawfiler - 4 years
 sprinkler systems installer* - 4 years
 structural steel and plate fitter* - 3 years
 tilesetter - 3 years
 tool and die maker* †
 transport refrigeration mechanic - 3 years
 water well driller - 2 years

* Red Seal Occupations

† Certification only, no in-school technical training available

BRITISH COLUMBIA (B.C.)

Administering Body

Apprenticeships are administered by the Ministry of Skills, Training and Labour, Apprenticeship Branch.

Authority

Apprenticeships in B.C. operate under *The Apprenticeship Act*. The Province offers approximately 120 apprenticeship programs (109 currently active), 27 of which have Red Seal certification options.

Structures

Director of Apprenticeship

The B.C. Director of Apprenticeship is chosen through public service competition and appointed by the Minister of Skills, Training and Labour. The Director advises the Minister on matters covered by the Act, carries out duties assigned by the Act or regulations, assists and advises the B.C. Provincial Apprenticeship Board in carrying out its duties and activities, and carries out responsibilities as assigned by the Minister.

British Columbia Provincial Apprenticeship Board

The B.C. Provincial Apprenticeship Board makes recommendations to the Director of Apprenticeship respecting regulations and the designation or dedesignation of trades, the recognition of sub-trades, and hears appeals to decisions of the Director. The membership of the Board must include equal representation of employers and employees. There is also a mechanism for the Board to offer advice to the Minister.

Trade Advisory Committees

B.C. currently has 55 trade advisory committees, made up of representatives of employers and employees. The committees set training and certification standards for their particular trades, and provide advice to the Provincial Apprenticeship Board.

Testing and Certification

Testing and certification exams are prepared by the Apprenticeship Branch with the help of industry and trade advisory committees.

Measurement/Evaluation of Product

The Director of Apprenticeship prepares work plans which are reviewed by the ADM, Skills Training and Labour on a regular basis. The Provincial Apprenticeship Board is currently proposing to submit an annual report to the Minister, however the structure and procedure for this is yet to be established.

Recent Changes

The B.C. Ministry of Skills, Training and Labour, with the co-operation of the B.C. Provincial Apprenticeship Board, has recently submitted to Cabinet and Treasury Board a comprehensive plan for the revitalization of the apprenticeship system. This plan includes looking at existing programs with a view to updating and improving them, as well as establishing new apprenticeship programs in emerging technology and high growth areas. The plan also recommends establishing or extending existing upgrading programs for journeypersons. A response from Cabinet is expected within the next month.

Secondary School Pre-apprenticeship Programs

B.C. is considering an enhanced high school training "world of work" program that will offer training and work experience in the trades as well as other technical occupations. This model will look like the Ontario model and will be flexible to the needs of individual school districts.

Science and Technology Elements in Apprenticeship Training

B.C. is providing journeyperson upgrading through innovative programs run by the training institutions and industry. Methods of delivery include flexible training periods such as evenings and weekends as well as on-site training.

Apprenticeship Programs Available and Length of Time to Completion

The compulsory designation indicates that an individual must have a Journeyman Certificate or be an apprentice to work in these trades in British Columbia. Trades which are inactive or have had limited registrations in the last few years are not included in this list.

aggregate plant operator	electronics technician (industrial)
aircraft maintenance mechanic	electronics technician (instrument repair and calibration)
aircraft structural technician	electronics technician (marine)
appliance service technician	electronics technician (panels and controls)
asphalt plant operator	electronics technician (telecommunications)
automatic transmission service technician	elevator mechanic
automotive collision repair technician	embalmer
automotive electric and tuneup technician	farm machinery mechanic
automotive glass installer	floor covering installer*
automotive machinist	front end alignment and brake service technician
automotive painting and refinishing technician	front end alignment and frame straightening technician
automotive partsperson	glazier*
automotive radiator manufacturer and repairer	graphic arts - bookbinder 1
automotive service technician	graphic arts - bookbinder 2
automotive trimmer	graphic arts - compositor
baker*	graphic arts - electronic typesetter
barber*	graphic arts - lithographic press feeder
boatbuilder	graphic arts - lithographic press operator
bricklayer	graphic arts - mechanical typesetter
carpenter*	hairstresser*
cement mason*	heat and frost insulator*
cladder	heavy-duty equipment mechanic
commercial trailer mechanic	inboard/outboard mechanic
commercial vehicle mechanic	industrial engines and equipment partsperson*
community antenna TV technician	industrial gasfitter
concrete plant operator	industrial instrument mechanic
construction boilermaker	industrial warehouseperson
consumer electronics technician*	ironworker *
cook*	jeweller and goldsmith
dental technician	joinery (benchwork) - cabinetmaker
diesel engine mechanic	landscape horticulturist
domestic/commercial gasfitter	lumber manufacturing industry - sawfiler 1 (benchman)
drywall finisher	lumber manufacturing industry sawfiler 2
electrician*	
electronics technician (audio & radio)	
electronics technician (consumer products)	

lumber manufacturing industry - sawfitter
machinist*
machinist-fitter
marine engine mechanic
marine engineer
meatcutter
millwright*
mobile crane operator
motorcycle mechanic*
oilburner mechanic - residential*
painter and decorator*
piledriver and bridgeworker
planer maintenance 1
planer maintenance 2
plasterer
plumber*
power lineman*
production horticulturist
recreation vehicle technician
refrigeration mechanic*
roofer
security alarms installer
sheet metal worker*
shipfitter
shipwright
small engine mechanic
sprinkler systems installer*
steamfitter-pipefitter*
steel fabricator
tile setter*
tire repairer
tool and die maker*
tower crane operator
transport refrigeration mechanic
upholsterer
utility arborist
wall and ceiling installer
welder*
winder electrician

* Red Seal Occupations

NORTHWEST TERRITORIES (NWT)

Administering Body

Apprenticeships are administered by the Department of Education, Culture and Employment, Apprenticeship Program Branch.

Authority

Apprenticeships in the NWT operate under *The Apprenticeship and Trade Certification Act*, which is currently under review. The NWT offer 39 apprenticeship programs, 25 of which have Red Seal certification options.

Structures

Apprenticeship Director

The Apprenticeship Director is an officer of the department appointed by the Minister of Education, Culture and Employment and is responsible for the administration of the Act and the supervision of all apprenticeship plans. The Director maintains records of apprenticeship contracts, makes those examinations and inquiries necessary to ascertain that the Act is being complied with, collaborates with educational authorities and with employers' and workers' organizations directly concerned with the trade, submits an annual report to the Minister, and performs any other duties prescribed by the Minister. In 1994, the position of Apprenticeship Director will become Manager of Apprenticeship Training.

Apprenticeship and Trades Certification Board

The Apprenticeship and Trades Certification Board makes recommendations to the Apprenticeship Director respecting regulations, the designation or dedesignation of trades, the recognition of sub-trades, and hears appeals to decisions of the Director. The membership of the Board must include equal representation of employers and employees, as well as one or more representative of the Department of Education, Culture and Employment.

Trade Advisory Boards

Current legislation provides for the establishment of trade advisory boards or committees, but due to the limited number of journeypersons in the NWT and the vast distances involved, there are currently none in existence.

Testing and Certification

The Apprenticeship and Trade Certification Exam is designed by the Apprenticeship Program staff in collaboration with the Apprenticeship and Trades Certification Board and the training institutes in both the NWT and Alberta, where 50% of the Territories' apprentices train.

Measurement/Evaluation of Product

The Apprenticeship Director submits a yearly report to the Minister.

Recent Changes

The NWT Department of Education has recently received cabinet approval for a legislative reform program which would give the Territories the ability to designate new apprenticeable occupations, particularly in areas which are not traditionally considered trades. For journeyman updating, as well as some other apprentice training, the NWT rely on institutions in other provinces, such as Alberta.

Secondary School Pre-apprenticeship Programs

The NWT have had some discussions concerning pre-apprenticeship programs, however no projects are envisioned in the near future.

Science and Technology Elements in Apprenticeship Training

The NWT offer Journeyman Updating courses, conducted at institutes in both the NWT and Alberta, to enable certified tradespersons to gain knowledge and skills in areas of their trade affected by technological change. The extent to which focus is placed on the areas of science and technology in apprenticeship training is up to the training institution.

Apprenticeship Programs Available and Length of Time to Completion

aircraft maintenance engineer [†] - 3 years	power line electrician* - 4 years
automotive parts* - 3 years	power system electrician - 4 years
baker - 3 years	printing and graphic arts - 4 years
barber - 2 years	refrigeration and air conditioning mechanic* - 4 years
cabinetmaker* - 4 years	roofer* - 3 years
carpenter* - 4 years	sheet metal worker* - 4 years
communication technician - 4 years	small equipment mechanic - 4 years
cook* - 3 years	sprinkler systems installer* - 4 years
electric appliance repair - 3 years	steamfitter/pipefitter* - 4 years
electrician (construction)* - 4 years	welder* - 3 years
electronic technician* - 4 years	
floorcovering mechanic* - 2 years	
gasfitter - 3 years	
glazier* - 4 years	
hairdresser* - 2 years	
heavy duty equipment mechanic* - 4 years	
heavy equipment operator**	
housing maintainer - 3 years	
industrial instrument mechanic* - 4 years	
industrial mechanic (millwright)* - 4 years	
industrial warehousing - 3 years	
machinist* - 4 years	
marine engineer [†] - 4 years	
motor vehicle body repair* - 3 years	
oil burner mechanic* - 3 years	
operating engineer (4th class) ^{††} - 1 year	
motor vehicle mechanic* - 4 years	
painter and decorator* - 3 years	
plumber* - 4 years	

* Red Seal Occupations

** Certification only, no in-school technical training available.

† Training only, on completion an apprentice receives a Completion of Apprenticeship Certificate. Journeyman certification is provided by another body.

‡ Training delivered through correspondence.

YUKON

Administering Body

Apprenticeships are administered by the Department of Education, Advanced Education Division, Training Programs.

Authority

Apprenticeships in the Yukon operate under *The Apprenticeship Training Act*. The Territory offers 28 apprenticeship programs, 24 of which have Red Seal certification options.

Structures

Director of Apprenticeship Training

The Director of Apprenticeship Training is a member of the public service of the Yukon and is designated by the Executive Council Member². The Director is responsible for the administration of the Act and performs duties that are or may be assigned under it.

Apprenticeship Advisory Board

Chaired by the Director of Apprenticeship Training, the Apprenticeship Advisory Board is composed of five members appointed by the Government Leader of the Executive Council: the chair; two employers of apprentices; and two journeypersons. The Apprenticeship Advisory Board carries out duties as prescribed by the Act.

Trade Advisory Committees

Trade Advisory Committees are established by the Government Leader in Executive Council, and are composed of members appointed by the Director. No limitations on the makeup such as balance between employees and employers is included in the legislation.

Inspectors of Apprenticeship Training

The Executive Council Member may appoint members of the public service of the Yukon to be inspectors of apprenticeship training, under the supervision of the Director.

² The Yukon government does not have a cabinet, but instead cabinet functions are carried out by an Executive Council consisting of five elected members of the legislative assembly reporting to an elected government leader. The Executive Council is responsible for policy decisions regarding education, social services, tax collection, highways, and community services. The Executive Council member responsible for education issues (equivalent to the Minister of Education) is responsible for training and apprenticeship issues.

Recent Changes

The Yukon is not currently carrying out any reviews of its apprenticeship program, although it is contemplating the possibility some time in the future. It is also interested in expanding its apprenticeship system to include other occupations, although it has not begun examining any in particular. The Territory does offer a limited number of updating courses to journeypersons, but this depends upon demand.

Apprenticeship Programs Available and Length of Time to Completion

baker*	motor vehicle body repairer*
barber*	motor vehicle mechanic*
cabinetmaker*	motor vehicle partsman*
carpenter*	oil burner mechanic
communication electrician*	painter and decorator*
communication electrician (switching craft)	plumber*
construction electrician*	sheet metal worker*
cook*	steamfitter-pipefitter*
electric motor winder	welder*
electronic technician (consumer products)*	
gasfitter*	
hairdresser*	
heavy duty equipment mechanic*	
industrial electrician*	
industrial instrument mechanic	
millwright*	
lather*	
lineman*	
machinist*	

* Red Seal Occupations

APPENDIX III

Characteristics and Roles of a National Organization

Committee's initial criteria for the *Characteristics* of a National Organization

1. Independent
2. Objective
3. Influential
4. Persuasive
5. Values oriented
6. Directed/focused
7. Arms length
8. Possessing a broad public image
9. Consumer oriented/client based
10. Baggage free
11. Credible
12. Accountable to the public
13. Relevant
14. Comprehensive
15. Enduring

Committee's perspective on the *Roles* of a National Organization

1. Plan and set goals and objectives at the national level.
2. Evaluate, monitor and report where we are in the learning culture.
3. Analyze patterns of change.
4. Adapt and adjust for change.
5. Establish mechanisms e.g. SAIP and the Canadian Education Statistics Council (CESC).
6. Encourage achievement of goals through appropriate and effective promotion programs.
7. Promote awareness and understanding of and commitment to goals.
8. Set national standards.
9. Articulate and communicate national standards and aspirations.
10. Determine indicators of goals and standards.
11. Serve as an accreditation centre.
12. Undertake research and development initiatives.
13. Coordinate common initiatives.
14. Exist as an enduring focus for all education issues and goals.

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