



Vision of Excellence

Essential Skills Needs Assessment of IBEW Members in Canada (Construction and Utility)





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Thanks especially to the National Essential Skills Steering Committee for their leadership and enthusiasm. They are all seasoned professionals who have made a significant contribution to the IBEW's *Vision of Excellence*:

- John Briegel, IBEW, Local 254;
- Ross Galbraith, IBEW, Local 37;
- Rod Goy, IBEW, Local 213/Electrical Contractors Association of British Columbia;
- Brigid Hayes, National Literacy Secretariat, Human Resources Development Canada;
- Gary Lehman, Electrical Contractors Association of Ontario;
- Rick Lousier, IBEW, Local 2085;
- Carol MacLeod, Carol MacLeod & Associates Inc.;
- Ed Nott, IBEW, Local 353;
- Yves St-Germain, IBEW, Local 568;
- Rosemary Sparks, Construction Sector Council;
- Fern Tardif, Joint Apprenticeship & Training Committee, IBEW, Local 625/Electrical Trade Division of the Construction Management Bureau;
- Patrick Vlanich, IBEW, Local 636; and,
- Jerry Wilson, IBEW, First District, CANADA.

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1. Executive Summary

Background

Lifelong learning is at the heart of the IBEW's *Vision of Excellence*. IBEW members need to be more qualified and versatile than ever. Essential skills are enabling skills (e.g., reading text, document use, numeracy) that workers use to: learn technical skills; perform job tasks; and, adapt to new technology and other workplace changes. This report identifies barriers to lifelong learning related to essential skills and forwards recommendations for an IBEW *National Essential Skills Strategy*. The findings were shaped by consultations with 151 industry stakeholders across seven provinces.

Issues and Challenges

- Many occupations demand more complex levels of essential skills than in the past due to, for example, new technologies and regulatory changes (health & safety, environmental).
- The utility sector is in the midst of transformational change. Stakeholders haven't fully explored the connection between human performance and essential skills.
- Some Powerline workers need to upgrade their reading text, document use and numeracy skills to meet the higher national standards now in place for the Red Seal occupation of Powerline Technician.
- Essential skills are a barrier to labour mobility for some journeypersons wishing to obtain Interprovincial (Red Seal) status.
- Industry stakeholders want more information on essential skills assessment/aptitude testing to inform related decision making.
- There are barriers to apprenticeship and technology training linked to essential skills. Apprenticeship and technology training systems are often ill-equipped to assist learners in building reading text and numeracy skills needed for success in the classroom training.
- There is industry support for promoting on-the-job teaching as a means of maximizing the quality and quantity of on-the-job learning.
- Some journeypersons have essential skills learning needs because, for example, English is their second language and their skills have become rusty over time.
- The IBEW's construction organizing policy should be supported by a complementary focus on assessing and upgrading essential skills for success in apprenticeship training.
- IBEW members require an even stronger commitment to continuous learning to manage change at work and at home. IBEW leaders need to promote lifelong learning in meaningful ways.
- There are significant essential skills learning needs among Aboriginal people, as well as cultural and communication issues, to consider in establishing strategies of inclusion.

This report identifies barriers to lifelong learning related to essential skills and forwards recommendations for an IBEW *National Essential Skills Strategy*.

IBEW National Essential Skills Strategy



Recommendations

The IBEW, First District, CANADA is committed to taking a leadership role in addressing the essential skills learning needs of IBEW members. Bringing vision to reality requires activities in the areas of partnerships, awareness, assessment and upgrading. These are the pillars of the report's 13 recommendations and provide a framework for the IBEW's *National Essential Skills Strategy*.

Partnerships

Partnership building within the IBEW and among employers, governments and educators is critical for action. Related recommendations focus on: expanding the research to include IBEW members in other sectors; assisting IBEW Local Union leaders and employers in linking the findings to a local context; and, collaborating with the Canadian Apprenticeship Forum in removing barriers to apprenticeship attributable to essential skills.

Awareness

Promoting awareness of essential skills theory and practice is a prerequisite for industry involvement. Related recommendations focus on: sponsoring a national Essential Skills Conference for key stakeholders across sectors employing IBEW members; and, encouraging utility employers to consider implementing workplace-specific essential skills learning programs.

Assessment

Essential skills assessment/aptitude testing is an important first step in understanding individual learning needs. As a best practice assessment should be linked to upgrading opportunities. The report points to a pressing need for further research comparing the degree to which different essential skills assessment tools predict success in apprenticeship and journeyman training. This research will assist the electrical industry in making informed choices about essential skills assessment and in strengthening the link between assessment and upgrading.

Upgrading

The IBEW, First District, CANADA is uniquely positioned to develop a tool kit of essential skills upgrading resources. Related recommendations focus on developing: learning activities based on the Canadian Electrical Code to build essential skills (e.g., numeracy) used in performing technical tasks; a How to Write an Exam guide to assist in preparing for certification examinations; a Web-based template to assist journeymen in preparing personal resumes documenting trade qualifications and experience; a learning package to harness the power of on-the-job learning by building the teaching skills of IBEW members; and, strategies to integrate essential skills upgrading into technical training including an instrumentation training plan being developed by the IBEW, First District, CANADA.

2. Background

2.1 International Brotherhood of Electrical Workers, First District, CANADA

The International Brotherhood of Electrical Workers (IBEW) dates back to the commercial use of electricity itself. Founded in 1891 it is the largest electrical union in the world. The IBEW represents more than 733,000 members across Canada and the United States.

The IBEW, First District, CANADA represents approximately 55,500 members in a variety of sectors including: construction (50%); utilities (30%); and, telecommunications, mining, paper mills, manufacturing, railroads and government (20%). Under the leadership of International Vice President Don Lounds, 14 International Representatives are located regionally to service 93 Local Unions. IBEW Local Union leaders from across Canada meet annually at an All Canada Progress Meeting to share information and to set new directions. www.ibew1st.org

2.2 Roots of this Research Initiative

This initiative took root at the 2001 All Canada Progress Meeting in Winnipeg, Manitoba. It grew from the theme *Vision of Excellence — Strengthening the IBEW in Canada* and a related process of national consultation with Local Unions. Ms. Brigid Hayes, from the National Literacy Secretariat (NLS) of Human Resources Development Canada (HRDC), was a keynote speaker and introduced delegates to the practice of workplace literacy. International Vice President Don Lounds subsequently released a report on national priorities featuring a Lifelong Learning Agenda and positioning essential skills as one of four learning targets along with skills training, labour education and organizing.

At the 2002 All Canada Progress meeting in Mont Tremblant, Quebec, delegates welcomed the announcement that the Honourable Jane Stewart, Minister, HRDC, approved a funding proposal to conduct an essential skills needs assessment. They were informed that the research would initially focus on the construction and utility sectors and involve other sectors at the 2003 All Canada Progress Meeting.

International Vice President Don Lounds created a National Essential Skills Steering Committee — representative of Labour, Management, HRDC and a Sector Council — to guide the research and to report back at the 2003 All Canada Progress Meeting in St. John's, Newfoundland.

Essential skills are enabling skills (e.g., reading text, numeracy) that workers use to: learn technical skills; perform job tasks; and, adapt to new technology and other workplace changes.

2.3 Essential Skills — Key Concepts

Definitions

Essential skills are enabling skills (e.g., reading text, numeracy) that workers use to: learn technical skills; perform job tasks; and, adapt to new technology and other workplace changes. They enable the achievement of occupational standards set by an industry or a specific employer. Essential skills also enhance the ability of people to pursue their career goals and to manage transitions in their lives.

In 1994, Human Resources Development Canada (HRDC) launched the Essential Skills Research Project (ESRP) — a national research study to examine how the essential skills are used in various jobs. They identified a set of skills used in virtually all occupations and coined the term *essential skills* to include:

- Reading Text
- Document Use
- Writing
- Numeracy
 - Money Math
 - Scheduling or Budgeting and Accounting Math
 - Measurement and Calculation
 - Data Analysis
 - Numerical Estimation
- Oral Communication
- Thinking Skills
 - Problem Solving
 - Decision Making
 - Critical Thinking
 - Job Task Planning and Organizing
 - Significant Use of Memory
 - Finding Information
- Working with Others
- Computer Use
- Continuous Learning

Literacy is defined as using printed and written information to function in society, to achieve one's goals and to develop one's knowledge and potential (International Adult Literacy Survey, 1994). Three distinct literacy domains are included in HRDC's list of essential skills:

- prose literacy (a.k.a. reading text) — knowledge and skills needed to understand and use information from texts;
- document literacy (a.k.a. document use) — knowledge and skills required to locate and use information contained in various formats including blueprints, forms, schedules, tables and graphics; and,
- quantitative literacy (a.k.a. numeracy) — knowledge and skills required to apply arithmetic operations, either alone or sequentially, to numbers embedded in printed materials.

It is helpful to think of literacy skills as learning-to-learn skills that are predictors of success in apprenticeship, journeyperson and technology training.

Essential Skills Profiles, HRDC

Essential Skills Profiles present detailed information on the complexity and use of essential skills in a particular occupation or occupational group using a methodology developed by HRDC. Through its Essential Skills Research Project and Interprovincial Standards (Red Seal) Program, HRDC has prepared Essential Skills Profiles for some 180 occupations to date. These occupations were identified using the National Occupational Classification. The research is ongoing. For example, in 2002 HRDC began preparing Essential Skills Profiles for Red Seal trades in consultation with industry stakeholders involved in updating National Occupational Analyses.

HRDC makes these Essential Skills Profiles, along with a host of related information, available on their Web site at www.hrdc-drhc.gc.ca/essentialskills. The IBEW's research used HRDC's Essential Skills Profiles as reference points to identify the complexity of essential skills required by IBEW members working in various occupations.

Employability Skills 2000+, Conference Board of Canada

The Conference Board of Canada refers to the critical skills needed in the workplace as Employability Skills 2000+. Their construct includes the following dimensions: communication; problem solving; positive attitudes and behaviours; adaptability; working with others; and, science, technology and mathematics skills.

Employability Skills 2000+ does not break down skill requirements on an occupation-by-occupation basis with reference to the National Occupational Classification as do HRDC's Essential Skills Profiles. It is referenced in this report because many of the college stakeholders consulted were familiar with this work.

www.conferenceboard.ca/education

Literacy Skills of Canadian Adults

Canada has excellent information on the literacy skills of its adult population. Important differences in literacy skills exist in Canada with significant social and economic implications. For example, about 22% of adult Canadians aged 16 years and over have serious difficulty dealing with printed materials. A further 24-26% can deal only with material that is simple and clearly laid out and material in which the tasks involved are not too complex.

These conclusions are among the key findings of the International Adult Literacy Survey (IALS) — a seven-country initiative conducted in 1994. During the period 1995 to 2000, the IALS data were the basis for four reports published by the Organization for Economic Co-operation and Development (OECD) in cooperation with Statistics Canada and HRDC. A summary of some of the key findings is in Appendix C. More detailed information is available at www.nald.ca/nls/ials/introduc.htm.

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In the organized electrical construction industry, Labour and Management (e.g., Electrical Contractors Association of Ontario) are partners in apprenticeship and work closely with provincial governments to provide quality training.

2.4 IBEW Members in the Electrical Construction Sector

The IBEW, First District, CANADA has 30 Local Unions with approximately 28,000 members working in the electrical construction sector. The scope of work performed by each Local Union is designated with reference to the IBEW's Constitution and encompasses the following categories:

- Industrial Commercial Institutional (e.g., Electrician);
 - Alarm and Signal (e.g., Electrician);
 - Communications/Voice Data Video (e.g., Network Cabling Specialist, Installer, Technician, Electrician);
 - Maintenance (e.g., Motor Rewind Technician, Electrician, Instrumentation);
 - Marine (Electrician, Technologists);
 - Residential Lowrise and Highrise (e.g., Electrician); and,
 - * Powerline Trades (e.g., Powerline Technician, Powerline Electrician).
- * Powerline occupations are included in both construction and utility jurisdictions. IBEW Construction Locals represent Powerline workers employed by Contractors serving the utility sector (e.g., IBEW, Local 1687). IBEW Utility Locals represent Powerline workers employed directly by utility companies (e.g., IBEW, Local 1615).*

IBEW members receive extensive training linked to apprenticeship — a proven industry-based learning system that combines on-the-job experience with classroom training to produce a certified journeyman. In the organized electrical construction industry, Labour and Management (e.g., Electrical Contractors Association of Ontario) are partners in apprenticeship and work closely with provincial governments to provide quality training. Depending on the province, apprentices may be indentured to Joint Apprenticeship Committees (a.k.a. Joint Apprenticeship & Training Committees) or to contractors.

The introduction of new technologies, particularly with automated control systems and in the communications field, has raised the bar with respect to the technical and essential skills required by occupations in the electrical construction sector. Along with an increase in the complexity of the electrical industry's demand for competencies is a focus on continuous learning and a related emphasis on journeyman training.

2.5 IBEW Members in the Utility Sector

The utility sector is diverse and uniquely structured in each province because of significant differences in legislative frameworks, management styles, customer size, employee size and facilities. The IBEW, First District, CANADA has 26 Local Unions with approximately 16,500 members working in the utility sector across the following occupational clusters:

- Maintenance Trades (e.g., Welder, Maintenance Mechanic);
- Technicians/Technical Occupations (e.g., Instrumentation Control, Chemical Technologists)
- Water Works Operations (e.g., Water Distribution Operator);
- Administration (e.g., Customer Service Representative);
- Communications (e.g., Communication Electrician, Electronic Technician); and,
- Operators/Station Engineers (nuclear and conventional).
- * Powerline Trades (e.g., Powerline Technician, Powerline Electrician);

** Powerline occupations are included in both construction and utility jurisdictions. IBEW Construction Locals represent Powerline workers employed by Contractors serving the utility sector (e.g., IBEW, Local 1687). IBEW Utility Locals represent Powerline workers employed directly by utility companies (e.g., IBEW, Local 1615).*

All utilities across North America have been preparing for, or dealing with, the impact of restructuring (e.g., deregulation, mergers, operational changes, movement from vertical integration to business units). In the utility sector, the workforce is expected to be better qualified and more versatile than ever. Industry stakeholders are grappling with issues related to, for example, new business opportunities, enhanced regulatory requirements, skills shortages, contracting out and safety. The prospect of foreign ownership is expected to have an impact on management styles and standards.

IBEW members are now expected to deal with a great deal of change and uncertainty — this represents a significant culture shift. A strong base of essential skills offers the confidence needed to adapt to changes related to re-skilling, multi-skilling and redeployment.

While there are profound differences among electrical utilities across the country, generally their work relates to a shared list of core business functions:

- Conventional Generation (e.g., hydro, thermal);
- Nuclear Generation;
- Transmission;
- Distribution; and,
- Customer Service.

In the utility sector, the workforce is expected to be better qualified and more versatile than ever.

3. Research Framework



3.1 National Essential Skills Steering Committee

In September 2002 a blue-chip Steering Committee was appointed. In November 2002 they met in Toronto to fine-tune the research objectives and to develop plans for stakeholder consultations in seven provinces. They identified regional contacts and arranged for interviews, focus groups and, in one instance, a survey. They hosted the Project Coordinator on-site and responded to emerging information needs. In June 2003, the Steering Committee met in Ottawa to analyze the research findings and to finalize a draft report.

National Essential Skills Steering Committee

Electrical Contractors

- Gary Lehman, Consultant, Electrical Contractors Association of Ontario

Federal Government

- Brigid Hayes, Program Consultant, National Literacy Secretariat, Human Resources Development Canada

IBEW, First District, CANADA

- Jerry Wilson, International Representative

IBEW Local Unions

- John Briegel, Business Manager, IBEW, Local 254, AB
- Ross Galbraith, Assistant Business Manager, IBEW, Local 37, NB
- Rick Lousier, Training & Education Coordinator, IBEW, Local 2085, MB
- Ed Nott, Training Director, IBEW, Local 353, ON
- Yves St-Germain, Business Manager, IBEW, Local 568, QC
- Patrick Vlanich, Education Officer, IBEW, Local 636, ON

Joint Labour-Management

- Rod Goy, Training Coordinator, Electrical Construction Industry Joint Training Committee, IBEW, Local 213/Electrical Contractors Association of British Columbia
- Fern Tardif, Chairman, Joint Apprenticeship and Training Committee, IBEW, Local 625/Electrical Trade Division of the Construction Management Bureau, NS

National Sector Council

- Rosemary Sparks, Project Manager, Construction Sector Council

Project Consultant

- Carol MacLeod, Project Coordinator, Carol MacLeod & Associates Inc.

3.2 Project Coordinator

The IBEW, First District, CANADA contracted Carol MacLeod, President of Carol MacLeod & Associates Inc., to conduct the research. With 20 years of experience in training and development, she is recognized as one of Canada's leading experts on essential skills. Carol holds the degree of Master of Education from Harvard University as well as a B.A. (Communications) and Certificate of Labour-Management Relations from the University of Ottawa. Formerly a member of IBEW, Local 2228, she was the National Coordinator of Education for the Canadian Federation of Labour from 1986-1992. www.carolmacleod.com

3.3 Objectives

1. To identify the essential skills learning needs of IBEW members working and learning in the electrical industry as apprentices and journeypersons, where possible differentiating by specialization (e.g., construction, maintenance, industrial, network cabling specialist, instrument mechanic/technician).
2. To identify gaps in essential skills development by analyzing how apprenticeship and journeyperson training systems are currently responding to essential skills learning needs.
3. To assess the essential skills learning needs of IBEW members working in the utility sector, where possible differentiating across the following occupational clusters: powerline-associated trades; maintenance trades (e.g., welders, maintenance mechanics); technicians/technical occupations; water works operators; administration (e.g., call centres); and, operators/station engineers (nuclear and conventional).
4. To identify gaps in essential skills development by analyzing how stakeholders in the utility sector are currently responding to the essential skills learning needs of their workforce.
5. To present a comparative analysis of assessment tools designed to measure individual essential skills capacity among those seeking to enter occupations in the electrical construction and utility sectors.
6. To identify essential skills issues that may impact recruitment among groups which have been under-represented in occupations with projected skill shortages (e.g., Aboriginals, women, immigrants and youth at-risk).
7. To recommend how the IBEW may best address the learning needs of its members and remove barriers attributable to essential skills.



Carol MacLeod interviews Aaron Koodoo, Chair, Construction Trades, Red River College, Winnipeg, MB

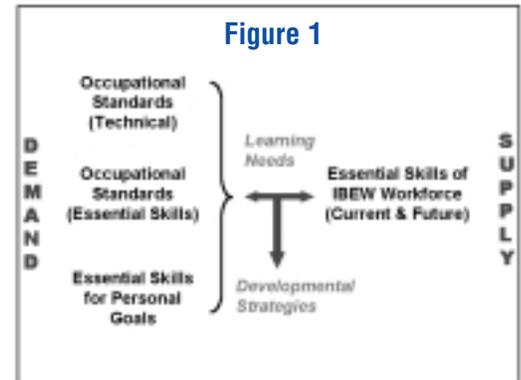
3.4 Methodology

Model for Needs Assessment

Essential skills learning needs are identified by comparing the demand for essential skills with the available supply in the current and future workforce. (See Figure 1.)

Occupational standards for technical and essential skills represent industry’s demand for skills (e.g., What skills are required of a qualified Electrician or Chemical Technologist?). Technical standards may be detailed in occupational analyses, from which curriculum and certification examinations are developed. They may also be outlined in competency profiles and embedded in job descriptions. For many occupations, including Interprovincial (Red Seal) trades, essential skills requirements are outlined in Essential Skills Profiles prepared by HRDC. The demand for essential skills is also linked to an individual’s personal goals (e.g., What essential skills do I need to achieve my career goals or to help my children with their homework?)

The skills of a workforce represent the supply side of the equation (e.g., What skills and knowledge does a workforce have?). The IBEW’s research plan emphasized collecting data on the supply side through extensive consultations with industry stakeholders.



Consultation Process

During the period December 2002 to July 2003, the Project Coordinator consulted 151 stakeholders (Appendix B) in seven provinces (i.e., BC, AB, MB, ON, QC, NB, NS). Face-to-face contact was the preferred approach — 89% of the participants were consulted in person. Among the stakeholders consulted:

- 69% participated in focus groups (1½ to 2 hours);
- 20% participated in individual interviews (1 to 1½ hours);
- 10% completed a survey of utilities in Ontario that have contracts with IBEW, Local 636; and,
- 1% participated in telephone interviews (1 hour).

4. Assessment of Strengths and Opportunities

4.1 Joint Apprenticeship Committees

The unionized electrical construction sector has a sophisticated training infrastructure supported by training trust funds jointly financed and managed by Labour and Management. IBEW Local Unions and Contractors in all jurisdictions except Quebec work through Joint Apprenticeship Committees (JACs) to provide the construction industry with the most highly trained and highly skilled workforce possible. In Quebec trades training is managed through the Quebec Construction Commission which considers recommendations from 26 trade sub-committees comprised of representatives from Labour (4), Management (4) and Government (1).

JACs manage activities related to apprenticeship administration (e.g., recruitment, screening, selection), apprenticeship training (e.g., partnering with community colleges, delivering supplemental training) and journeyman training. In some jurisdictions (e.g., ON, BC) apprentices are indentured directly to JACs, as opposed to Contractors. This assists apprentices in getting well-rounded practical experience.

While a national coordinating body does not exist in Canada, JACs benefit from their affiliation with the National Joint Apprenticeship and Training Committee (NJATC) in the United States. The NJATC was created in 1941 by the IBEW and the National Electrical Contractors Association and has developed into one of the largest apprenticeship and journeyman training programs of its kind. They offer a wide range of training resources as well as professional development for training administrators and instructors. With respect to essential skills they offer, for example, an aptitude test (i.e., Apprentice Selection Test Battery) and technical math courses. www.njatc.org

The JAC infrastructure is well positioned to implement a harmonized essential skills strategy for the electrical construction industry that focuses on best practices in the area of essential skills assessment and upgrading. The establishment of a vehicle to better collaborate nationally would enhance the capacity of the JACs to identify and address essential skills learning needs.

On a provincial basis, the Joint Electrical Promotion Plan (JEPP) — a joint Labour-Management body funded by industry to promote and develop the unionized electrical construction industry in Ontario — is moving in that direction. In 2002 JEPP created a Provincial Training Committee following its 2nd Annual Training conference to implement recommendations forwarded in its *Report on Best Practices in Managing the Human Resources of the Electrical Industry, Part II: Action Plan*. The Provincial Training Committee is actioning several recommendations related to essential skills, such as researching a standardized aptitude test for voluntary use by JACs across Ontario.

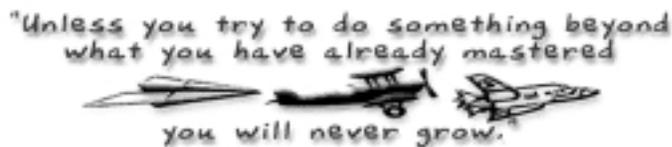
The JAC infrastructure is well positioned to implement a harmonized essential skills strategy for the electrical construction industry that focuses on best practices in the area of essential skills assessment and upgrading.

The unionized electrical industry has a strong commitment to journeyperson training and views it as critical in adapting to technological change and in capturing new markets.

From a multi-trade perspective, the Construction Sector Council (CSC) is an example of a joint, national body addressing human resource issues in the construction industry at large. It was established in 2001 to identify and undertake human resource projects and initiatives geared toward meeting the current and future human resource needs of the industry. IBEW International Vice President Don Lounds sits on the Board of Directors.

The CSC has noted that several construction trade labour market studies raised issues related to essential skills. As a result, they are exploring how they could add value to the various essential skills projects that the construction industry has sponsored over the years. www.csc-ca.org

4.2 Journeyperson Training



Courtesy of IBEW, Local 353

The unionized electrical industry has a strong commitment to journeyperson training and views it as critical in adapting to technological change and in capturing new markets. The need for continuous learning among journeyperson electricians was outlined in *A National Labour Market Study of the Electrical Trade* (1997).

Journeyperson training is financed and managed in several different ways. In some cases Joint Apprenticeship and Training Committees (JATCs) handle it alongside apprenticeship (e.g., IBEW, Local 625/ Electrical Trade Division of the Construction Management Bureau). In other cases Local Unions finance it through member contributions from collective agreements and manage it using Technical Education Committees (e.g., IBEW, Local 353). Employers (e.g., Contractors, utility companies) also manage and pay for in-house training.

The unionized electrical industry facilitates a significant amount of journeyperson training in new technology areas related to: fibre optics; VDV; alternate energy; computers; programmable logic controls; communications; wireless communications; instrumentation; and, integrated building systems. There is a growing demand for instrumentation expertise required by, for example, members of IBEW, Local 424 in Alberta to work in the tar sands megaprojects. It is important that all Local Unions requiring Instrumentation Technicians build a related training capacity.

Safety training is a vital and ongoing feature of journeyperson training. The unionized electrical industry also provides training associated with traditional electrical work relating to, for example, electrical code, fire alarms and welding. JACs have stepped up their training to assist journeypersons with provincial tickets in achieving Interprovincial (Red Seal) status. This is important in providing greater mobility for IBEW members.

The infrastructure supporting journeyperson training is well positioned to integrate essential skills assessment and upgrading into technical training.

4.3 Apprenticeship as a National Public Policy Priority

Apprenticeship is an important mechanism for workforce development in the construction and utility sectors employing IBEW members. It is equally important in other sectors employing IBEW members. Apprenticeship is a mutual interest of both Labour and Management that typically is jointly addressed in partnership with the appropriate provincial ministry. Recent changes to the national public policy framework supporting apprenticeship may prove helpful in addressing essential skills learning needs related to success in apprenticeship. In 2002 the federal government launched Canada's Innovation Strategy outlining the priorities for Canada's innovation and learning strategy. HRDC positioned apprenticeship as a national public policy priority and committed substantial funds to the Canadian Apprenticeship Forum (CAF).

The CAF (www.caf-fca.org) was established in 2000 to: promote apprenticeship as an education and training system contributing to the development of a skilled workforce; and, provide a vehicle for the constituent groups to work together to support the apprenticeship system across Canada. Eliminating barriers to apprenticeship and promoting common core curriculum standards are among their high-priority projects. Jerry Wilson, International Representative, IBEW, First District, CANADA sits on the CAF's Board of Directors.

The pan-Canadian, multi-party perspective that the CAF brings to the provincially regulated area of apprenticeship has already yielded results with respect to information sharing and best practices. The CAF is currently involved in a number of activity areas and it would be advantageous to explore how essential skills links to their current and future projects.

4.4 Pre-apprenticeship Training and Pre-technology Programs

Pre-apprenticeship training and pre-technology programs help learners to build the essential skills (e.g., math, reading text) needed for success in trade and technology training programs. Such preparatory programs expose learners to an occupation — particularly important since public schools no longer offer vocational education. For many learners, they provide a second chance to brush up rusty skills and to get into the learning groove. With leadership from key electrical industry stakeholders, preparatory training models may be strengthened so that they fully reach their potential with respect to identifying and addressing essential skills learning needs.

Pre-apprenticeship training is offered only in some provinces. The terminology used, as well as the purpose and scope of the training provided, varies. In British Columbia, for example, Entry-Level Trades Training (ELTT) is a ten-month program that is credited as the equivalent of Level 1 apprenticeship. It may also be integrated into a high school curriculum based on a partnership between a college and a local high school. Manitoba's Electrical Construction Pre-employment is a one-year certificate program that also gives credit for Level 1. In both provinces, the employer has the option of crediting up to 900 hours. In 2002, Quebec introduced a pre-employment training program which is publicly funded. In March 2003, the organized electrical industry in Ontario launched its first 1800-hour pre-apprenticeship program.

Pre-apprenticeship training and pre-technology programs help learners to build the essential skills (e.g., math, reading text) needed for success in trade and technology training programs.

High School students in the Electrical Pre-apprenticeship Program, British Columbia Institute of Technology



Technology instructors report that a high-school diploma does not ensure that learners have the required mix and level of essential skills. In particular, numeracy is seen as a key predictor of success in technology programs and is often the root cause of failure.

The electrical trades instructors consulted noted that pre-apprenticeship programs emphasize building math skills. This is particularly important since the requirements for electrical trade math are not adequately covered in the Grade 12 curriculum. Apprentices reported that the learning acquired in pre-apprenticeship was invaluable as they progressed through various levels of classroom apprenticeship training. For one, it was a way to ease into the trade at a pace that was conducive to learning. Employers observed that apprentices hired through the pre-apprenticeship/pre-employment stream have a comparatively higher skill set than those who have not participated in the programs.

Another testimonial to the value placed on pre-apprenticeship training is the policy that IBEW, Local 625 in Nova Scotia established in 1999. They automatically offer membership to pre-apprenticeship graduates and the invitation is valid for three months. They also established successful completion of Level 1 apprenticeship as a criterion for union membership. This ensures that incoming members have proficient numeracy skills, reading text skills and basic trade knowledge as a foundation for further learning. Employers see a link between these policies and competitiveness.

The utility industry is one of the primary employers of graduates from technology programs at community colleges. Technology instructors report that a high-school diploma does not ensure that learners have the required mix and level of essential skills. In particular, numeracy is seen as a key predictor of success in technology programs and is often the root cause of failure. Some community colleges respond to these learning needs by offering pre-technology programs that often focus on building English, math and physics skills. For example, New Brunswick Community College has a flexible, modularized, pre-technology program that has contributed to an increased success rate in programs such as Chemical Technology and Industrial Control Technology.

Leadership from stakeholders in the electrical industry would assist preparatory training programs in reaching their full potential with respect to identifying and addressing essential skills learning needs.

4.5 SkillPlan — BC Construction Industry Skills Improvement Council

Established as a not-for-profit society in 1991, SkillPlan is a joint Labour and Management initiative of the BC construction industry. Its mission is to develop strategies to improve the essential skills of people working in the unionized construction industry in British Columbia and the Yukon Territory. SkillPlan is partly funded through collective agreements. Unions, companies and training plans pay fees for special project development.

SkillPlan facilitates opportunities to enhance reading, writing and math skills that serve as the basis for further learning. They directly assist individuals by providing tutors, study groups and classroom delivery. They also provide professional support to members for course development, test design and clear language. SkillPlan and Bow Valley College are jointly leading the development and marketing of the Test of Workplace Essential Skills (TOWES).

The original vision of applying the SkillPlan model in other provinces or regions has not yet been realized but the potential remains. See www.skillplan.ca for more information.

5. Issues and Challenges

5.1 More Complex Occupational Requirements for Essential Skills

Industry has raised the skills bar to cope with an unprecedented rate of change. Many occupations in the construction and utility sectors demand more complex levels of essential skills than in the past due to:

- new technologies (e.g., Voice, Data, Video);
- management policies and practices (e.g., quality programs, multi-skilling);
- industry restructuring (e.g., mergers, deregulation, downsizing); and,
- regulatory changes (e.g., health & safety, environmental).

In the utility sector, for example, Powerline Technicians need more complex document use, numeracy and computer skills to work with sophisticated equipment and to reference documents using laptops. Water Plant Operators are using reading text, document use and numeracy skills more frequently when participating in training to comply with new regulatory standards. Oral communication skills are now more closely associated with safety as sharing information and coordinating work become more important on-the-job.

The electrical construction industry is actively promoting a culture of continuous learning among journeypersons. Contractors want to take advantage of emerging markets; journeypersons want to enhance their skills repertoire and, therefore, their employability. A visit to the training link on the Web site of IBEW, Local 353 (www.ibew353.org) — a Toronto-based Local with over 6,000 members — offers a feel for the complexity of the computer use skills that Construction and Maintenance Electricians now need to specialize in new technologies such as fibre optics.

Employers have traditionally used entry-level educational requirements to indicate their demand for essential skills. More complex demands translate to enhanced educational requirements for new hires. In fact, some long-term workers would not meet the entry-level educational requirements that currently exist for their occupation. Ironically, industry has little confidence that level of educational attainment guarantees that an individual has the mix of essential skills needed for the job. This finding is corroborated by a survey of utility stakeholders in Ontario conducted as part of this research study and a survey conducted in 2001 for the 1st Annual Training Conference sponsored by the Joint Electrical Promotion Plan.

Many occupations in the construction and utility sectors demand more complex levels of essential skills than in the past.

In the utility sector, IBEW members with strong essential skills are more likely to make smooth transitions in adapting to change than those with essential skills barriers. The International Adult Literacy Survey concluded that many adults with low literacy skills do not report that their skills present them with any difficulties until workplace changes put them at risk.

5.2 Restructuring of the Utility Sector

Change Management

The utility sector in North America is in the midst of transformational change. A competitive environment and changing demographics are prompting a new emphasis on managing human capital and fostering continuous learning. Utility employers and IBEW members face unprecedented challenges and uncertainties.

In the utility sector, IBEW members with strong essential skills are more likely to make smooth transitions in adapting to change than those with essential skills barriers. The International Adult Literacy Survey concluded that many adults with low literacy skills do not report that their skills present them with any difficulties until workplace changes put them at risk.

To what degree are essential skills issues having an impact on the change management efforts of utilities? Given the diverse structure of the utility industry in each province, more detailed, site-specific research is required to fully answer this central question. There is, however, enough evidence to draw some broad conclusions.

Essential Skills Issues and Challenges

Type of Utility — Core Business Function	Issues	Challenges
Electrical — Conventional Generation	<ul style="list-style-type: none"> • re-skilling • multi-skilling • redeployment • succession planning 	<ul style="list-style-type: none"> • resistance to change may be due, in part, to a lack of confidence in essential skills needed to learn and to adapt • downsizing highlighted limitations of workforce skills
Electrical — Nuclear Generation	<ul style="list-style-type: none"> • regulator is demanding requalification (testing) of existing employees • significant increase in use of reading text and document use skills to ensure procedural compliance • significant emphasis now placed on effective communication skills • industry is demanding a higher standard of excellence • changing job requirements due to downsizing and post 9-11 security measures 	<ul style="list-style-type: none"> • increased participation in independent learning and training • document use skills have been linked to safety; • lack of problem solving skills among some young employees — not enough life experience to draw on • nuclear industry strong on profiling and evaluating technical skills but makes assumptions about related essential skills —relies on technical credentials as a proxy indicator of essential skills proficiency

Type of Utility — Core Business Function	Issues	Challenges
Electrical — Transmission & Distribution	<ul style="list-style-type: none"> • concerns about the capacity of Powerline workers to interpret safety and training materials • more focus on apprenticeship training • more focus on technical skills upgrading 	<ul style="list-style-type: none"> • more complex occupational requirements for technical and related essential skills mean that some Powerline workers need to upgrade their reading and numeracy skills • administrative supports in place for Powerline workers for paperwork and problem solving • some Powerline workers travel as opposed to working in fixed areas
Electrical — Customer Service	<ul style="list-style-type: none"> • safety initiatives • introduction of new technology 	<ul style="list-style-type: none"> • generally coping well with change management issues
Water	<ul style="list-style-type: none"> • new regulatory requirements and standards for water quality • ongoing requirements to participate in training 	<ul style="list-style-type: none"> • stakeholders observe that some Water Distribution Operators lack confidence in their ability to learn and would benefit from essential skills upgrading

Powerline Workers

The situation of IBEW Powerline workers employed by Contractors and utility companies merits elaboration. The IBEW, First District, CANADA supports mandatory certification of the Powerline occupation across the provinces. The IBEW’s interests relate to: safety in a high-risk occupation; interprovincial mobility of labour; and, the protection of Canadian standards. Their concerns are rooted in the American experience with deregulation which has led to reductions in safety and apprenticeship training. At the moment, British Columbia is the only jurisdiction that has mandatory certification. While industry and governments in other jurisdictions voluntarily recognize the Interprovincial (Red Seal) standards for the occupation of Powerline Technician, this is subject to change.

Most stakeholders consulted noted that a segment of the Powerline workforce would benefit by upgrading their reading text and numeracy skills to meet the higher standards recently established in the National Occupational Analysis for Powerline Technician. These new standards will be the basis for revising the related Interprovincial (IP)

Consultations with HR Managers at NB Power. L-R Ross Galbraith (IBEW, Local 37), Suzanne Desrosiers, Jill Doucett, Andrea Allen



Many industry stakeholders are sponsoring training for Powerline workers who want to achieve Interprovincial (Red Seal) status. Their training could be more effective if they assessed the essential skills of participants so that instructors could better understand and address related learning needs.

examination. Essential skills learning needs are more prevalent among mature workers who:

- do not have a provincial or IP licence because it is not required in their jurisdiction (e.g., Quebec); or,
- obtained a provincial licence when the pass rate was lower (e.g., 60% in Ontario) than that set for the IP examination (i.e., 70%).

Mature Powerline workers out of school for some time may lack study skills and have difficulty in reading and finding information under the time pressures of the IP exam. Many prefer to learn by verbally exchanging information or by demonstration, as opposed to relying on reading and note-taking skills. Powerline workers with proficient reading, document use and numeracy skills will have less difficulty than those with comparatively weaker skills in preparing for the IP examination and demonstrating their mastery of the trade through a timed, paper-and-pencil test. Many industry stakeholders are sponsoring training for Powerline workers who want to achieve Interprovincial (Red Seal) status. Their training could be more effective if they assessed the essential skills of participants so that instructors could better understand and address related learning needs.

Some IBEW Powerline workers in Quebec have learning needs related to English as-a-second language when referrals are made to IBEW Locals in other provinces and the U.S.A. While all courses are delivered in French, the Quebec Construction Commission's Electrical Sub-committee expects that its recommendation to add 150 hours of trade-related English training will soon be implemented.

Reflections

Restructuring often triggers a rethinking of how to achieve important human resource interests such as recruitment, training, retention and safety. The connection between human performance and essential skills needs to be more fully explored by stakeholders in the utility sector. The following points should also be given consideration:

- assisting workers in career planning is linked to retention and related efforts should be informed by an understanding of the essential skills differential across occupations;
- technology-based training may require computer use skills that exceed those needed for a job incumbent's occupation;
- new hires in technical occupations with strong academic skills often have difficulty in applying the theory learned in school to applied problem-solving tasks on the job;
- many materials provided to workers are too complex. Clear language principles should be applied in developing workforce ready materials, especially those related to safety.

5.3 Barriers to Labour Mobility Related to Essential Skills

Interprovincial (Red Seal) Ticket

Obtaining an Interprovincial (IP) ticket is more important to labour mobility now that Alberta has made it a condition of hire and no longer offers a grace period to obtain it while working in the province. A number of journeyperson electricians across Canada have a provincial licence only and want to upgrade to IP status. Each province has its own licencing protocols and the degree of harmonization with the IP protocols varies.

Many Local Unions and Joint Apprenticeship Training Committees are offering training sessions to assist IBEW members in preparing for an IP examination. For some journeypersons, their level of essential skills is a barrier to achieving this goal. Seasoned workers with strong hands-on experience may have difficulty in demonstrating their mastery of the trade through a paper-and-pencil test.

A focus group in Nova Scotia with journeyperson electricians who failed the IP exam is a case in point. In this instance, the reading text and finding information skills required to interpret the Canadian Electrical Code — the basis for an estimated 60% of the questions on the IP exam for Construction Electrician — had become rusty over time through lack of use. They reported that Contractors do not require them to reference the Canadian Electrical Code. Related information needs are handled by forepersons and project managers.

Several stakeholders, from both Labour and Management quarters, independently voiced concern that the competencies outlined in the National Occupational Analysis for Construction Electrician are too broad in scope. From their perspective the technical standards and, by extrapolation the corresponding essential skills standards, exceed the requirements of most employers. The degree to which employers provide literacy rich environments in which there are opportunities to maintain and enhance essential skills is an important essential skills issue.

Common Core Curriculum Standard

The Canadian Apprenticeship Forum has developed the following definition of common core along with a series of guiding principles for common core implementation:

Common core curriculum standard is a list of validated technical training outcomes, based on those sub-tasks identified as common core in the National Occupational Analysis (NOA), and validated by industry in the provinces and territories as incorporating the essential tasks, knowledge and skills associated with a given trade.

In the process of developing a common core curriculum standard for electrical trades it would be helpful to involve industry stakeholders in discussing the related occupational essential skills requirements. In 2002, HRDC committed to preparing an Essential Skills Profile for each Interprovincial (Red Seal) occupation with input from the

Essential skills are a barrier to labour mobility for some journeypersons wishing to obtain Interprovincial (Red Seal) status.

National Occupational Analyses Committees. The Essential Skills Profile for Electrician is completed and may be found at www.hrdc-drhc.gc.ca/essentialskills. There is a need to raise awareness of the important link between technical training outcomes and essential skills.

5.4 Essential Skills Assessment/Aptitude Testing

Apprentice Screening & Diagnostic Tools

In the construction and utility sectors, essential skills assessment is primarily used in relation to apprenticeship as a component in the screening process or as a diagnostic to remediate learning needs. Industry stakeholders often refer to it as aptitude testing, with reading text and numeracy skills being tested exclusively or alongside other skill domains (e.g., mechanical reasoning). The unionized electrical construction sector in particular has a long-standing tradition of administering aptitude tests to predict success in apprenticeship. The fact that essential skills are being assessed in a multitude of ways suggests that there are related learning needs among those who want to pursue apprenticeship.

The scope of the IBEW's research did not allow for an exhaustive study of essential skills assessment. Table 1, however, offers a flavour of the different assessment approaches that industry stakeholders are using for apprenticeship.

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Examples of Essential Skills Assessment Tools Used in Apprenticeship

Essential Skills Assessment Tool	Stakeholder	Comments
Canadian Adult Achievement Test (CAAT), Level C	Red River College	A battery of tests (e.g., reading comprehension, number operations, problem solving, mechanical reasoning). There are three levels of CAAT based on the number of years of formal education. Level C is for adults who have had at least eight years of schooling and may have graduated from high school.
Customized Computer-based Aptitude Test	JAC — Toronto	In 2003 the JAC — Toronto developed an in-house computer-based aptitude test which measures reading text, numeracy, spatial and mechanical reasoning skills. Included as part of a suite of tools used to screen apprenticeship candidates. They formerly used the National Joint Apprenticeship and Training Committee (NJATC) Apprentice Selection Test Battery.
Early Academic Readiness and Achievement Test (EARAT)	JAC — Ottawa	Included as part of a suite of tools used to screen apprenticeship candidates. Tests are administered by Algonquin College.
Essential Skills Assessment Interview	Apprenticeship Branch, NS Department of Education	In the early 90s every apprentice in NS came through direct entry and was assessed using the Differential Aptitude Test (DAT) and CAAT. In 2000 they began to replace the assessment process and to implement learning supports. Pilot tests are being conducted on an interview format that uses workplace materials related to a trade.
Test of Workplace Essential Skills (TOWES)	SkillPlan (BC Construction Industry Skills Improvement Council) and Bow Valley College (Vendors)	Measures prose, document and quantitative literacy skills using the International Adult Literacy Survey methodology. Generic tests, and customized tests benchmarked to occupational standards, are available. Third party scoring.
Self Evaluation for Apprenticeship in the Electrical Trades	Industry Training and Apprenticeship Commission, BC	Measures proficiency in trade math, trade science and reading drawings.
Electrical Apprenticeship Entrance Examination	Joint Apprenticeship and Journeyperson Retraining Committee, BC	Measures proficiency in trade math and trade science.

There is industry support for building on the IBEW's preliminary research on essential skills assessment as it is linked to success in apprenticeship.

Electrical construction stakeholders often assess mechanical reasoning skills, along with reading text and numeracy skills, when screening apprenticeship candidates. The O'Rourke Mechanical Aptitude Test (The Psychological Institute) and the Bennet Mechanical Comprehension Test (The Psychological Corporation) are being used in some instances.

There is a shared recognition of the potential that valid essential skills assessment holds as a predictor of success. In particular, electrical instructors in colleges unanimously agreed on the benefits of having timely information on the essential skills proficiency of learners and expressed frustration that this rarely happens.

Test of Workplace Essential skills (TOWES)

The Test of Workplace Essential Skills (TOWES) is a new test developed by SkillPlan (BC Construction Industry Skills Improvement Council) and Bow Valley College. The support that HRDC has provided for the development of the TOWES is fueling curiosity and experimentation. The IBEW's Essential Skills Steering Committee indicated an interest in gathering more information on TOWES. In anticipation of future research, arrangements were made with the TOWES sponsors to include the JAC – Toronto (IBEW, Local 353 and Electrical Contractors Association of Toronto) and George Brown College in a predictive validity study — the results will be available next year. www.towes.com

More Research Needed

There is industry support for building on the IBEW's preliminary research on essential skills assessment as it is linked to success in apprenticeship. Stakeholders in the electrical construction industry are also interested in obtaining better tools to assess mechanical aptitude. For example, JEPP's Provincial Training Committee has put a high priority on research leading to a standardized approach for screening apprenticeship candidates in Ontario. They feel this would facilitate mobility of labour within the province and assist in addressing quality issues.

5.5 Barriers to Apprenticeship and Technology Training Related to Essential Skills

Lack of a Standardized Approach to Assessing Essential Skills

In the construction industry, depending on the jurisdiction, an electrical apprentice may be indentured to a JAC (e.g., Ontario) or directly to a contractor (e.g., Nova Scotia, Manitoba). JACs that indenture apprentices have formal processes in place to screen applicants in an effort to select the best possible candidates. In this case, assessing essential skills is a component of the overall screening process. Contractors typically use less formal screening processes with some placing more emphasis on attitude as an indicator of an applicant's willingness and capacity to learn.

In both the construction and utility sectors, if colleges and provincial ministries assess essential skills, the results are used as a diagnostic to understand learning needs. Instructors, however, typically know little more than a learner's name before he/she enters the classroom. They feel that diagnosing essential skills needs should be done at the front-end of the learning process. Instead valuable time is often wasted in building an understanding of individual essential skills strengths and weaknesses. It was suggested test results could also be used to put together classes that have learners with an appropriate mix of essential skills levels.

As discussed in the previous section, there is a hodge-podge of approaches to essential skills assessment with a notable lack of consistency even for Red Seal occupations. A harmonized, pan-Canadian approach to assessment would benefit industry stakeholders as it would allow for the collection of data that may be analyzed to inform human resource management.

Essential Skills Assessment Divorced From Instruction

As a best practice, essential skills assessment should be linked to instruction. This is a weakness in apprenticeship and technology training systems which are often ill-equipped to address the learning needs diagnosed through assessment. Related financial barriers are problematic. From a public policy perspective there is no ownership for essential skills upgrading as it relates to workforce development.

Partnership building is critical to capacity building in apprenticeship. Industry stakeholders, such as JACs and colleges delivering apprenticeship training, may play a more effective role in developing a cohesive industry response to addressing essential skills learning needs. While pre-apprenticeship programs are effective in this regard, they are typically voluntary, and only partially address the problem of preventable failures and drop-outs attributable to essential skills. Integrating essential skills into technical training has proven to be effective because if the learner sees that upgrading is relevant to the job. A system of referral to community-based service providers makes sense in other instances.

Insufficient Reading Text and Numeracy Skills

Apprenticeship and technology classroom training demands proficient reading text and numeracy skills. How are learners faring? Numeracy skills are often weak and the root cause of failures and drop outs. For learners with English as-a-second language, reading text and oral communication skills may be barriers when English is the language of instruction.

Instructors suggest that time and funding pressures preclude an effective curricular response to addressing essential skills learning needs. They note that the learning process would be less painful all around if learners had a stronger foundation of essential skills supporting them.

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Many apprentices would also benefit from some assistance in building the reading text skills needed to, for example, interpret the electrical code. Some apprenticeship instructors noted that their pedagogical training did not include reading theory and related teaching techniques. In contrast, they were far more confident in their ability to assist learners in building trade math skills and had access to high-quality learning resources.

Maximizing the Time Spent on Technical Training

The electrical instructors consulted felt that they could facilitate far more trades training in any given timeframe if learners had a sufficient level of reading text and numeracy skills before entering the course.

5.6 Improving the Quality of On-the-Job Teaching and Learning

Essential Skills Development and On-the-Job Training

Historically the job of a journeyman was to work and teach while the job of an apprentice was to work and learn. On-the-job training is all about teaching and learning in the workplace. The use of on-the-job training to address both technical and essential skills learning needs in an integrated way is often overlooked.

How does on-the-job teaching and learning relate to essential skills development? It is important to recognize that a mix of essential skills (e.g., problem solving, working with others, computer use) enables the performance of all job tasks. Technology instructors report that graduates hired by utilities often have difficulties in applying their problem solving skills to workplace situations. Young people entering the workforce for the first time often need to build job-specific document use skills. For example, when showing a new hire how to complete various forms a Power Plant Operator is teaching writing and document use skills. A train-the-trainer model is often adopted when new equipment is being installed in a generating plant — this involves the essential skill of continuous learning on the part of both teachers and learners.

On-the-Job Teaching

The construction and utility sectors will soon lose a significant number of their most experienced workers. On-the-job training that engages qualified workers in building the workforce of tomorrow is an effective strategy for transferring skills and knowledge. While the quality of teaching skills is central to the success of this model, experience shows that those who are qualified to perform a job aren't always effective in teaching others.

In the electrical construction industry, the journeyman-apprentice relationship used to be synonymous with that of teacher-learner. Only 15% of an apprentice's time is spent learning in the classroom; 85% of learning occurs through on-the-job training. Today, the original vision of journeymen as teachers has become eroded. There are three main barriers to involving journeymen in facilitating learning with apprentices on-the-job and it is clear that a joint approach (i.e., Labour & Management) is required to address them. They include the:

- attitude held by some journeymen that apprentices are there to carry their tools and get the coffee;
- absence of on-the-job-teaching skills that enable journeymen to facilitate learning among apprentices; and,
- highly competitive environment in which electrical contractors operate, leading to severe time pressures that aren't conducive to teaching and learning.

While the use of structured Mentoring programs is not the norm, it is a feature of the approach to on-the-job training taken by one of the utility stakeholders consulted. At Point Lepreau Nuclear Generating Station, Mentors are selected by management to facilitate on-the-job training with new hires and are trained for this role. As a result, they acquire the teaching competencies needed to: assess training needs; develop training plans; and, evaluate the learning outcomes.

Best Practices for On-the-Job Teaching and Learning

In *Making it Work! On-the-job Training in Apprenticeship* (1998), the Canadian Labour Force Development Board outlines best practices for on-the-job training which apply to all trades. The following elements are integral to successful on-the-job training:

- commitment to apprenticeship training—team work involving the employer, the apprentice and the trainer;
- the passing of knowledge and skills to the apprentice;
- clear training objectives;
- development of a training plan and schedule;
- monitoring of the training program; and,
- fair and equitable treatment of all employees.

There is broad-based industry support for promoting on-the-job-teaching as a means of maximizing the quality and quantity of on-the-job learning. There is also a willingness to partner in developing promotional campaigns and resources for teaching and learning.

Industry Support for On-the-Job Teaching and Learning

There is broad-based industry support for promoting on-the-job-teaching as a means of maximizing the quality and quantity of on-the-job learning. There is also a willingness to partner in developing promotional campaigns and resources for teaching and learning. Some of the thoughts and interests expressed by various industry stakeholders across Canada are summarized below:

- The basic principles of on-the-job teaching and learning apply to all jobs, regardless of sector.
- Instructors teaching apprenticeship see improved on-the-job teaching and learning as a means to better connect the classroom training with on-the-job experience.
- Ensuring that apprentices get well-rounded on-the-job experience is an important consideration.
- Some Contractors are interested in integrating a module on how to teach on-the-job into their supervisory training courses.
- Approaches to on-the-job teaching and learning can not detract from a Contractor's competitive edge.
- Creating a culture shift among new entrants to the workforce is important. Instruction on *How to teach on-the-job* could be integrated into apprenticeship training and be offered by JACs.
- While many generic on-the-job teaching and learning resources are available in the construction industry, with some exceptions, industry has not bought into them. The development and branding of industry-specific resources could be developed and promoted.

5.7 Essential Skills Learning Needs of Journeypersons

Generally, most IBEW journeypersons in the construction and utility sectors have sufficient learning-to-learn skills (i.e., reading text, document use, numeracy) that enable them to acquire new technical skills and to adapt to workplace changes. There are, however, noteworthy gaps that merit elaboration which haven't been addressed elsewhere:

- IBEW journeypersons employed by utility companies typically are paid to participate in continuous learning activities scheduled by the company. Usually this is not the case in the construction industry which relies on volunteer participation in programs scheduled at night and on weekends. As a result, some journeypersons only participate in training when they are unemployed.
- Some journeypersons have essential skills learning needs related to English as a second language (ESL), particularly in large, multi-cultural centres such as Toronto and Vancouver. ESL training is not typically available through Local Unions or JACs and this requires rethinking.

- Mature journeypersons (e.g., 50 + years) tend to have weaker literacy skills and stronger hands-on skills than younger journeypersons. They do, however, demonstrate more mechanical aptitude. Industry stakeholders attributed this to a number of factors such as: participation in vocational education before it was phased out of the public school system; low levels of education; and the length of time out of school.
- Literacy skills become rusty if not used regularly and some journeypersons have experienced a skills loss that may be a barrier to participation in skills upgrading.
- Computer use is an increasingly important occupational requirement. Depending on age, computer training was not a part of the public schooling experienced by some journeypersons and there is a need for related training. This is being met in part through voluntary participation in journeyperson training programs; however, those who lack confidence in their learning-to-learn skills often don't self-select into training.
- Journeypersons who achieved their Certification of Qualification by challenging the exam are more likely to have essential skills learning needs than those who participated in an apprenticeship-training program.
- Journeypersons in need of a resume may not have the writing skills to prepare one. Local Unions get requests for assistance in resume writing when, for example, journeypersons need to obtain a visa to work in the United States. The IBEW, First District, CANADA should consider making a resume template available on its Web site.

5.8 Learning Supports for the IBEW's Construction Organizing Policy

The IBEW requires Local Unions to organize and has put a great deal of energy into related policies and practices. All IBEW members enjoy the same rights and privileges regardless of their point of entry into the union. For the purpose of understanding essential skills learning needs, it is important to distinguish between apprentices who become IBEW members through organizing and apprentices accepted into the union after being screened and selected by a JAC or contractor.

JAC representatives, and those supporting a Local's technical education program, reported significant challenges in building the competencies of apprentices who become IBEW members when a non-union shop is organized. This is particularly true in Toronto where successful organizing drives have resulted in a large influx of new IBEW members. The JAC is responsible for training and there are both quality issues and image issues to contend with. By way of example, it was reported that one such non-union shop classified 125 of their 300 employees as apprentices and 80% of these so-called apprentices were not registered with the government.

According to the Canadian Apprenticeship Forum, apprenticeship is comprised of 85% on-the-job training and 15% classroom training. Electrical trades instructors and training administrators agree that reading text and numeracy skills are the most significant predictors of success in apprenticeship. There is a strong consensus among industry stakeholders that, in some cases, there are significant gaps in the reading text, document

The central issue is how to support organizing with a complementary focus on assessing and upgrading essential skills in preparation for apprenticeship training.

The observations of a Diversity Manager at NB Power highlight that there are significant essential skills learning needs among Aboriginal people, as well as cultural and communication issues, to consider in establishing Aboriginal recruitment, training and retention strategies.

use and numeracy skills of apprentices brought in through organizing. There are also barriers to learning related to attitude. The central issue is how to support organizing with a complementary focus on assessing and upgrading essential skills in preparation for apprenticeship training.

5.9 Fostering Lifelong Learning

There is a need to foster lifelong learning in meaningful ways. The workforce of tomorrow must be better skilled than ever before. The commitment to continuous learning that IBEW members have may be strengthened to better prepare them for change in the workplace and on the home front.

Promoting a culture of continuous learning among journeypersons was one of the key messages in *A National Labour Market Study of the Electrical Trade* (1997). Changing technology is an important factor in this regard. Journeypersons do associate training with employability. Unlike the utility sector, however, there is no immediate financial incentive or obligation for journeypersons in the construction industry to participate in training.

The IBEW, First District, CANADA, may play a leadership role in overcoming the barriers associated with lifelong learning, including those attributable to essential skills. Engaging their management counterparts in this effort will be important.

5.10 Strategies of Inclusion for the IBEW Workforce of Tomorrow

While utilities are still reeling from restructuring, they have been making plans to meet their future human resource requirements. Changing demographics suggest that there will be skills shortages aggravated by the increased competition for the same talent pool. This bodes well for the implementation of outreach strategies to groups that have traditionally been under-represented in their workforce, such as Aboriginals and women in technical occupations.

The observations of a Diversity Manager at NB Power highlight that there are significant essential skills learning needs among Aboriginal people, as well as cultural and communication issues, to consider in establishing Aboriginal recruitment, training and retention strategies. NB Power's outreach initiatives include providing information to bands about: occupational requirements for technical and essential skills; math tutoring; behaviour-based interviews; and the role of the union. NB Power also negotiates designated seats at community colleges.

The electrical construction industry is also concerned about developing strategies of inclusion. This is particularly true in provinces where Aboriginals make up a large proportion of the population, such as Manitoba and Saskatchewan. Some Local Unions have pursued special outreach initiatives to provide pre-employment training to Aboriginals.

6. Recommendations

IBEW National Essential Skills Strategy



The IBEW's *National Essential Skills Strategy* features four complementary components that drive the recommendations: Partnerships; Awareness; Assessment; and, Upgrading.

Partnerships

Recommendation #1

Engage IBEW Local Union leaders across the country in supporting the IBEW's *National Essential Skills Strategy* and in linking the findings of the needs assessment to a local context.

Implementation Tips

Print the report in English and French. Distribute at the IBEW's 2003 All Canada Progress Meeting. Deliver a presentation in plenary. Prepare a speaker's kit for ongoing use by the National Essential Skills Steering Committee. Draft a feature article for publication in the IBEW Journal and in the Canadian Comment.

Recommendation #2

Identify how findings from the *Essential Skills Needs Assessment of IBEW Members in Canada (Construction and Utility)* apply to IBEW members in other sectors (i.e., government, telecommunications, paper mill, mining, manufacturing, railroad).

Implementation Tips

Facilitate interactive discussions in the concurrent sector caucuses at the 2003 All Canada Progress Meeting. Members of the National Essential Skills Steering Committee will serve as facilitators. Conduct follow-up research as needed.

Partnerships



Recommendation #3

Engage employers across Canada in supporting the IBEW's *National Essential Skills Strategy* and in linking the findings of the Essential Skills Needs Assessment to a local context.

Implementation Tips

Liaise with employers to distribute the report and to facilitate follow-up discussions. Draft an article for publication in selected industry magazines geared to employers. Solicit invitations for speaking engagements.

Recommendation #4

Engage the Canadian Apprenticeship Forum (CAF) in a partnership to remove barriers to apprenticeship attributable to essential skills.

Implementation Tips

Invite the CAF's Executive Director to deliver a keynote address at the IBEW's 2003 All Canada Progress Meeting. Monitor the progress of their research projects. Facilitate ongoing discussions to identify partnership opportunities.

Awareness

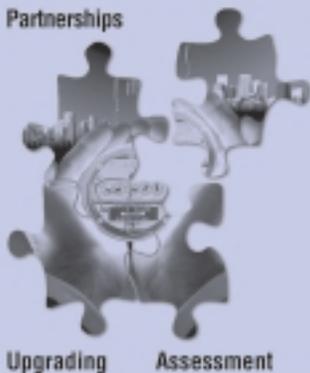
Recommendation #5

Sponsor a national Essential Skills Conference as a means of increasing awareness of essential skills issues, resources and practices among key stakeholders (i.e., Labour, Management, Government, training providers) across sectors employing IBEW members.

Implementation Tips

Secure co-sponsors. Design an agenda featuring plenary and break-out sessions for workshops. Select a venue. Prepare and distribute a preliminary brochure. Post information on the IBEW Web site and the Web sites of co-sponsors. Host the conference. Prepare an article for distribution in industry publications.

Awareness



Recommendation #6

Encourage utility employers to explore the link between human performance and essential skills and to consider implementing workplace-specific essential skills learning programs.

Implementation Tips

Distribute this report as a foundation for further discussion. Promote participation in the IBEW's Essential Skills Conference. Collaborate in initiating workplace-specific needs assessments and in identifying options for implementation.

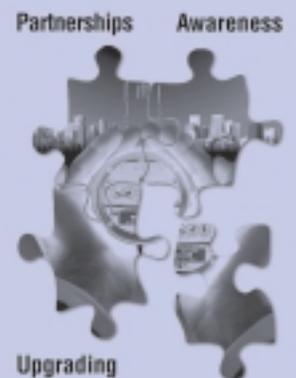
Assessment

Recommendation #7

Assist the electrical industry in making informed choices about essential skills assessment/aptitude testing by conducting research comparing the degree to which different essential skills assessment tools predict success in apprenticeship and journeyperson training.

Implementation Tips

Select the essential skills assessment tools/aptitude tests to be included in the study. Collaborate with colleges, JACs, Local Unions and employers to administer different assessment tools. Correlate test scores to various success indicators (e.g., classroom tests, on-the-job performance, safety). Draw conclusions about predictability. Document information on issues related to test administration (e.g., time, cost, scoring services). Prepare a report and distribute it to industry stakeholders.



Assessment



Upgrading

Recommendation #8

Mount a national promotional campaign to foster a culture of continuous learning among journeyman electricians. Develop learning resources based on job tasks that involve referencing the Canadian Electrical Code to build and maintain related essential skills.

Implementation Tips

Design a promotional poster. Develop a series of questions and answers based on the code book to develop both technical skills and the related essential skills (e.g., reading text, document use and numeracy). Post them on the IBEW's Web site for use by IBEW members and instructors facilitating training. Add new questions and answers to the site regularly.

Recommendation #9

Develop learning resources to assist journeymen in obtaining Interprovincial (Red Seal) status with an emphasis on note taking and strategies for success in writing multiple-choice certification examinations.

Implementation Tips

Develop a *How to Write an Exam* guide for self-directed learning and a corresponding Instructor's Guide for classroom training. Develop a unit of instruction on note taking. Promote the integration of these resources into Interprovincial (Red Seal) preparatory training.

Recommendation #10

Post a resume template on the IBEW's Web site to assist journeymen in preparing personal resumes documenting trade qualifications and experience.

Implementation Tips

Develop a model resume that reflects best practices. Prepare tips on how to use the resume template to prepare a personal resume. Develop a promotional strategy.

Recommendation #11

Promote on-the-job-teaching as a means of improving the quality of on-the-job training through the development and pilot testing of industry-specific learning resources.

Implementation Tips

Conduct a literature search of on-the-job-training resources. Develop an industry-specific learning package that includes an Instructor's Guide and video or CD-ROM to build introductory-level on-the-job teaching skills among IBEW members. Pilot test the resources with construction and utility employers. Make the learning package available to community colleges for use in Level 4 apprenticeship training. Design a promotional campaign to facilitate a culture shift.

Recommendation #12

Integrate an essential skills strategy into the instrumentation training plan being developed by the IBEW, First District, CANADA.

Implementation Tips

Meet with the training committee. Identify the essential skills requirements for the occupation of Instrumentation Technician. Gather more specific information on the essential skills learning needs of IBEW members seeking instrumentation training. Prepare a briefing paper on options for integrating essential skills assessment and upgrading into the technical training.

Recommendation #13

Integrate essential skills upgrading into the training currently being offered by IBEW Local Unions, JACs, employers and colleges.

Implementation Tips

Encourage training systems to include a parallel focus on essential skills and to utilize available resources. Develop new essential skills learning resources. Offer professional development to trades and technology instructors on teaching techniques for addressing essential skills learning needs in the context of technical training.

Appendix A

Glossary of Terms and Acronyms

CAAT	Canadian Adult Achievement Test
CAF	Canadian Apprenticeship Forum
CSC	Construction Sector Council
DAT	Differential Aptitude Test
EARAT	Early Academic Readiness and Achievement Test
ECAO	Electrical Contractors Association of Ontario
ELTT	Entry-Level Trades Training
Employability Skills	a term coined by the Conference Board of Canada describing critical skills needed in the workplace including: communication; problem solving; positive attitudes and behaviours; adaptability; working with others; and, science, technology and mathematics skills.
Essential Skills	a term coined by HRDC describing enabling skills that workers use to learn technical skills, to perform job tasks and to adapt to workplace changes. HRDC has identified nine skills considered as essential to all jobs: reading text; document use; writing; numeracy; oral communication; thinking skills; working with others, computer use; and, continuous learning.
HRDC	Human Resources Development Canada
IALS	International Adult Literacy Survey
IBEW	International Brotherhood of Electrical Workers

JAC	Joint Apprenticeship Committee
JATC	Joint Apprenticeship and Training Committee
JEPP	Joint Electrical Promotion Plan
Literacy	using printed and written information to function in society, to achieve one's goals and to develop one's knowledge and potential (International Adult Literacy Survey,1994). IALS measures three distinct literacy domains — prose, document and quantitative literacy — which are included in HRDC's broader list of essential skills.
NLS	National Literacy Secretariat
NJATC	National Joint Apprenticeship and Training Committee
OECD	Organization for Economic Co-operation and Development
Sector Councils	organizations (e.g., Construction Sector Council) that bring together industry stakeholders in a specific sector to collaborate in addressing human resource issues, frequently with support from HRDC.
TOWES	Test of Workplace Essential Skills

Appendix B

List of Research Participants

The consultation process spanned seven provinces and engaged 151 stakeholders in addition to the IBEW's National Essential Skills Steering Committee. 80% of them provided feedback during face-to-face interviews and focus groups. Note that participation in the research does not imply concurrence with the findings.

British Columbia (Construction)

- Warren Laine, Instructor, Electrical Pre-apprenticeship Programs, Surrey Campus, British Columbia Institute of Technology (BCIT)
- Hank Paquin, Owner, Sasco Systems Ltd.
- Stephen Sallaway, Program Coordinator, Industry Training and Apprenticeship Commission
- Ted Simmons, Chief Instructor Electrical Apprenticeship, (BCIT)
- Jon Todrick, Electrical Instructor, University College of the Fraser Valley
- Greg Wong, Journeyperson Electrician
- Don Zaklan, Instructor, Electrical Pre-apprenticeship Programs, Surrey Campus, (BCIT)

Apprentices, Electrical Construction Joint Training Committee, IBEW Local 213/Electrical Contractors Association of BC

- Margaret Campbell (Level 4)
- Reid Hockin (Level 3)
- Russell Schellenberg (Level 2)

Alberta (Utility)

- G.W. (Gary) Kerr, Training Supervisor, Waterworks and Wastewater, City of Calgary
- Terry Shank, Medicine Hat Electrical Utility
- Ann Wilson, Ph.D., Manager of Education, Planning and Development, EPCOR Utilities Inc.

ENMAX Power Corporation

- Trevor Landage, Supervisor, Trades Training
- Shannon Robinson, Human Resource Analyst

TransAlta

- Stephen Foster, Manager, Labour and Employee Relations
- Lyal Samaroden, HR Advisor

Manitoba (Construction)

- Vair Clendenning, International Representative, IBEW, First District, CANADA
- John Schubert, Managing Partner, McCaine Electric Ltd.
- Ken Selluski, Instructor, Aboriginal Pre-employment Program, IBEW, Local 2085 and Tataskweyak Cree Nation
- Ron Stecy, Business Manager/Financial Secretary, IBEW, Local 2085

Manitoba Education, Training and Youth — Apprenticeship Branch

- Ihor Cap, Ph.D., Program Development Coordinator
- Nancy Eller, Acting Director of Program Standards
- Ron Krishka, Prior Learning Assessment and Recognition Coordinator
- Christine Kuehl, Director of Program Standards
- Heather Kilbrai, Policy Analyst
- Louise Nichol, President, OARS Training
- Perry Samagalski, Apprenticeship Training Coordinator, Electrical Trades

Red River College

- Claudio DiBiase, Electrical Instructor
- Bud Kolodie, Electrical Instructor
- Aaron Koodoo, Chair, Construction Trades
- Syd Kowall, Electrical Instructor
- Steven Lipischak, Electrical Instructor
- Richard Malczewski, Electrical Instructor
- Kris Melsted, Electrical Instructor
- Taki Nishimura, Department Head
- Jeff Pringle, Electrical Instructor

Ontario (Construction)

- Ove Bakmand, Net Electric
- Gord Cunningham, Quantech Electrical Contractors Ltd.
- Erik Hueglin, Counsellor, JAC – Toronto (IBEW, Local 353 and Electrical Contractors Association of Toronto)
- Peter Lambrinos, Vice-President, TEGG Services, Smith and Long Ltd.
- Martin McBride, Former Director of Apprenticeship Training, JAC – Toronto (IBEW, Local 353 and Electrical Contractors Association of Toronto)
- Bill McKnight, Director of Apprenticeship Training, JAC – Toronto (IBEW, Local 353 and Electrical Contractors Association of Toronto)
- Jim Scholes, Manager, Industrial Automation, Smith and Long Ltd.
- Steve Squelch, Project Manager, Smith and Long Ltd.

Ontario Electrical College Curriculum Advisory Committee

- Louis D'Alonzo, Ministry of Training, Colleges and Universities
- Dave Dewar, Durham College
- Jim Fitzpatrick, Conestoga College
- Don Kouri, Mohawk College
- Robert McTaggart, Sault College
- Hugh Orchard, Fanshawe College
- Michael Rees, Humber College
- Les Taffinder, St. Clair College
- John Tindill, Sir Sanford Fleming College
- Guert VanDeKraats, George Brown College
- Andy VandeSande, Algonquin College

Provincial Training Committee, Joint Electrical Promotion Plan

- John Anderson, JAC — Hamilton
- Tim Butler, JAC — Northern Ontario
- Mike Galley, Electrical Contractors Association — Niagara
- Mark Kuehl, IBEW, Local 804
- Gary Lehman, Electrical Contractors Association of Ontario
- Bill McKnight, JAC — Toronto
- Ed Nott, IBEW, Local 353
- Peter Olders, Ontario Communications Training
- Richard Soroka, IBEW-CCO

Technical Education Committee, IBEW, Local 353

- Mike Arruda, Lee Caprio, Jaffer Erglic, Dave Kennedy, Lou Marino, Angela Martin, Paul Morgan, Ed Nott, Peter Olders, Robert Rynyk, Mark Steane, Jim Stewart, Garry Thomson, Steve Young

Ontario (Utility)

IBEW, Local 636

- Don Boyd, Executive Board, Region 9
- Barry Brown, Business Representative
- Stef Doliszny, Executive Board, Region 6
- Allen Gates, Business Representative
- Linda Georgiu, Executive Board, Region 7
- Dan Giesbrecht, Business Representative
- Ed Lamb, Executive Board, Region 1
- Bill Miller, Executive Board, Region 4
- Jim Millar, President
- Domenic Murdaca, Business Representative
- Nancy Tata, Recorder
- John Thornton, Executive Board, Region 8

- Hans Van Manen, Executive Board, Region 3
- Harold Vance, Business Representative
- Patrick Vlanich, Education Officer
- J.R. Wacheski, Business Manager
- Eldon Wallis, Vice President

Interviews: Utility Employers in Ontario/IBEW, Local 636

- Joanne Morello, Vice President of Human Resources, Enersource Corporation
- Carolyn Windsor, Richmond Hill Hydro Inc.

Survey: Utility Employers in Ontario/IBEW, Local 636

- Michael Audet, Management, E.L.K. Energy Inc.
- Helen Clewer, Labour, Hydro One Brampton
- Gloria Day, Management, The Corporation of the Town of Milton
- Tom Freemark, Management, Renfrew Hydro Inc.
- James Dunn, Labour, and Carrissa McCaw, Management, Peterborough Utility Services Inc.
- Jane Hale-McDonald, Management, Cambridge & North Dumfries Hydro Inc.
- Paul Jones, Management, Canadian Niagara Power Company Ltd.
- Dave Morris, Labour, and Sandra Taylor, Management, Orillia Power Distribution Corporation
- Rod MacPherson, Labour, Essex Power Corporation
- Dan Perdu, Management, the Corporation of the Town of Lakeshore
- Tim Pitts, Labour, Veridian Corporation
- Eldon Wallis, Labour, City of Orillia
- Dave Wheeler, Labour, Cambridge Hydro

Quebec (Construction)

- Yves St-Germain, Business Manager, IBEW, Local 568
- Charles-André Brouillette, Business Representative, IBEW, Local 568

New Brunswick (Construction)

- John Deering, Training Officer, IBEW, Local 502
- Lloyd Soble, Business Manager, IBEW, Local 502

New Brunswick (Utility)

- Steve Hayes, President, IBEW, Local 37
- Ken Jordan, Development Officer, Apprenticeship and Occupational Certification Branch, NB Department of Training, Employment and Development

New Brunswick Community College

- Mathew McKim, Instructor, Chemical Technology
- Mark Miller, Coordinator/Instructor, Mechanical and Power
- Aline Munro, Dean, Business and Engineering Technologies & Trades
- William Stroud, Department Head – Mechanical Industrial
- Arliss Wilson, Instructor, Industrial Control Technology
- Paul Woodhouse, Instructor, Industrial Control Technology

NB Power Corporation

- Andrea Allen, Manager, Human Resources, Customer Service Business Unit and Transmission Business Unit,
- Susan Currie, Manager of Labour Relations
- Suzanne Desrosiers, Manager, Human Resources, Point Lepreau Generating Station
- Jill Doucett, Manager, Human Resources, Generation Business Unit,
- Allan Eldridge, Technical Supervisor, Nuclear
- Rita Hurley, Diversity Manager, NB Power
- Steve Ketcham, Manager of Training, Nuclear Generation, on secondment from the National Academy for Nuclear Training

- Karen Stafford, Director, Personnel Services
- Stephen Tayes, Work Methods and Safety Coordinator, Coleson Cove Generating Station
- Paul Theriault, Vice-President, Human Resources & Administration
- Berit Watson, Human Resources Planning

Nova Scotia (Construction)

- Tom Griffiths, Organizer/Business Representative, IBEW, Local 625
- Charlie Kerr, General Manager, Atlantic Canada, Ainsworth Atlantic
- Margaret Lynas, Executive Director, Nova Scotia Construction Human Resource Sector Council
- Tim Swinamer, Assistant Business Manager, IBEW, Local 625

Journeyperson Electricians, IBEW, Local 625

- Peter Citulsky, Phil Cox, Chris Greenough, Jeff Hadley, Brian Jollimore, Lee McCulloch, Derek Nash

Nova Scotia Community College

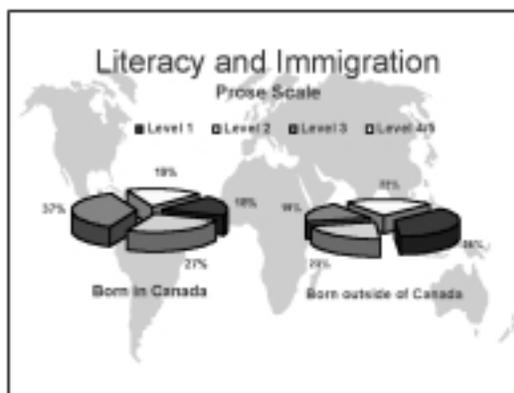
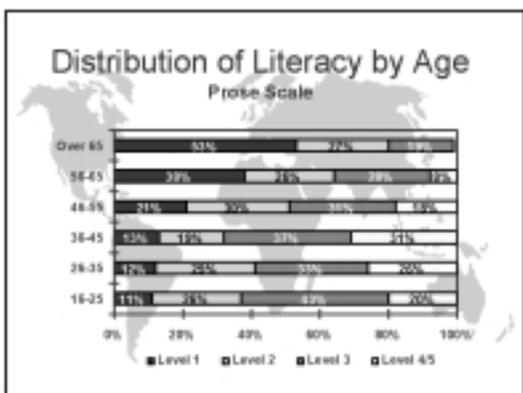
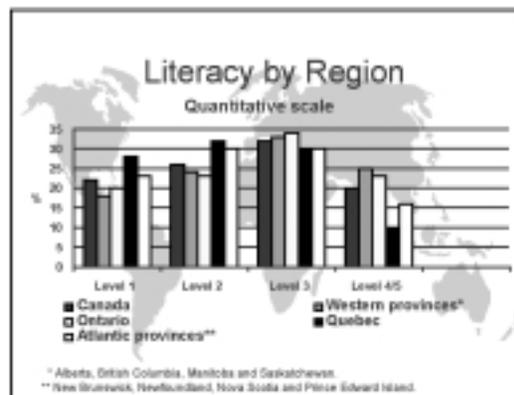
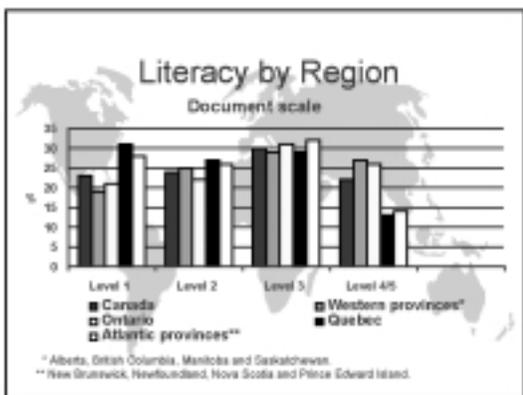
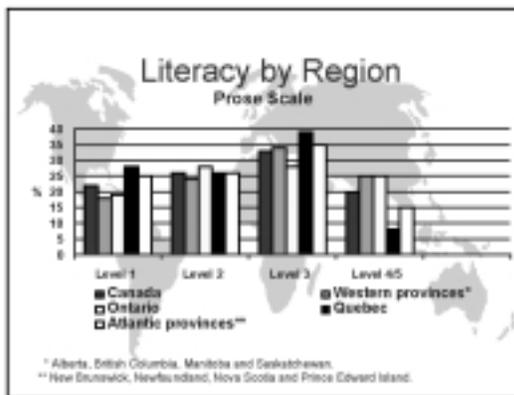
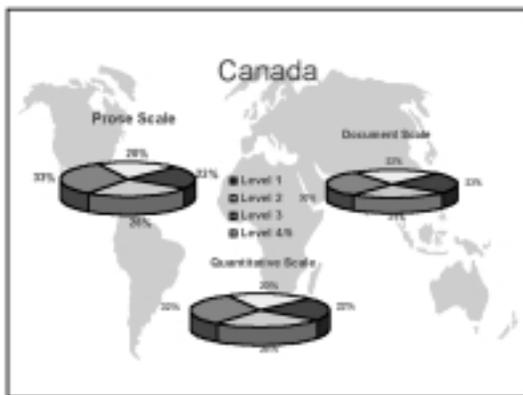
- John Drish, Faculty, Electrical Trades Training
- Peter Gatza, Faculty, Electrical Trades Training
- Kevin Gerrior, Manager of Apprenticeship Training
- Robert Sampson, Curriculum Consultant, School of Trades and Technology
- Steve Kaiser, Faculty, Electrical Trades Training

Nova Scotia Department of Education

- Joe Black, Director, Apprenticeship Training
- Joe Brown, Workplace Education, Metro Region, Adult Education Section
- Marjorie Davison, Manager, Skills and Learning, Labour Market Programs
- Karen Rees-Ducey, Industrial Training and Certification Officer

Literacy Skills of Adult Canadians, International Adult Literacy Survey (IALS)

Some of the key findings from the International Adult Literacy Survey (1994) are summarized below. The IALS reports detail results on three scales (i.e., prose, document and quantitative literacy) along a continuum of skills from 1 (lowest) to 4/5 (highest).



- About 22% of adult Canadians 16 years and over fall in the lowest level of literacy (i.e., Level 1). They have serious difficulty dealing with printed materials and most likely identify themselves as people who have difficulties reading.
- Another 24-26% fall in the second lowest level (i.e., Level 2). They can deal only with material that is simple and clearly laid out, and material in which the tasks involved are not too complex. They read, but not well.
- There is considerable regional variation in Canadians' literacy skills.
- In every country in the IALS study, when only age is considered, younger adults aged 26-35 have higher literacy scores than adults closer to retirement aged 56-65.
- While the association between literacy and education is strong, there are exceptions. For example, some adults have a relatively high degree of literacy proficiency despite a low level of education. Conversely, there some adults have low literacy skills despite a high level of education.
- Adults with low literacy skills do not usually recognize a need to improve their skills.
- Like muscles, literacy skills may weaken if not used regularly. For example, the literacy skills of apprenticeship candidates may be rusty if they have been away from school for some time working in jobs that have low-level requirements for Reading Text and Numeracy.
- Literacy skill requirements and performance vary significantly by occupation and industry. Some occupations need high-level skills and others reflect requirements for intermediate skills.

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