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What You Don't Know Can Hurt You
Literacy's Impact on Workplace Health and Safety

EDUCATION AND LEARNING

The Conference Board of Canada
Insights You Can Count On

What You Don't Know Can Hurt You: Literacy's Impact on Workplace Health and Safety
by *Alison Campbell*

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Preface

This report summarizes the results of a two-year research project that examined the impact of literacy skills on health and safety in the workplace. Qualitative and quantitative data were collected and analyzed through a literature review, a national survey, stakeholder interviews, and case studies. The findings aim to demonstrate—in cost-benefit terms—the connections between literacy skills and workplace health and safety. The study's overall goal is to motivate employers and their learning partners to invest more in workplace literacy development programming.

CONTENTS

Executive Summary i

Chapter 1—Literacy's Importance to Workplace Health and Safety 1
Literacy's Importance to Public Health and Safety 1
Health and Safety Policies and Literacy 2
About the Project 3

Chapter 2—Workplace Health and Safety—Hard Facts 5
The Costs of Workplace Safety 6
Health and Safety by Sector 6
Lowering Workplace Health and Safety Costs 8

Chapter 3—National Survey Results 10
Survey Design 10
Survey Findings 12
Health and Safety Impacts of Workplace Literacy Skills Development 17

Chapter 4—Good Practices in Action 22
Case Study 1—Injecting Quality Into Production Excellence at Abbott Point of Care 24
Case Study 2—Dishing Up Quality at Atlantic Health Sciences Corporation 24
Case Study 3—Safe Landings: Adult Basic Education at Bristol Aerospace 25
Case Study 4—Priority Communications Within the City of Vancouver 26
Case Study 5—A Multi-Faceted Approach to Literacy Skills Development at De Beers Canada 27
Case Study 6—Building Skills for a Safe Workplace: Competency Management at Keyera Energy 28
Case Study 7—Hatching a Plan for Safety: Literacy Skills Development at Lilydale Inc. 28
Case Study 8—A Clear View of Safety at Loewen Windows 29
Case Study 9—Forming the Foundation of Safety: Omega 2000 Cribbing Inc. 30
Case Study 10—Learning for Safety: English-Language Training at Robinson Paperboard Packaging 31

Chapter 5—Recommendations and Conclusions 33
Organizational Action Plan 33
Alternative Models to Written Health and Safety Procedures 35
Conclusions 35

Appendix A—Bibliography 37

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EXECUTIVE SUMMARY

What You Don't Know Can Hurt You

Literacy's Impact on Workplace Health and Safety

At a Glance

- Safe workplaces operate more smoothly and have lower potential for risks and incidents.
- When workers with low literacy or weak language skills are assisted in raising their skills, they become better able to act and react to workplace situations in accordance with approved health and safety measures.
- Businesses and their employees realize health and safety benefits from literacy and/or language skills development in the workplace.

Healthy, safe workplace environments allow businesses to function as they were meant to. Employers have a responsibility to ensure that standards and regulations are maintained and followed through by all personnel. But workplace health and safety is dependent on policies and procedures being understood and carried out as directed, and adherence to health and safety policies and procedures requires comprehension and communication skills from all concerned. Low literacy skills are not an acceptable cause for substandard work or for not meeting quality thresholds. The impacts of literacy skills go beyond the workplace and extend to the realm of public health and safety. Consumers rely on rigorous quality, health, and safety standards and regulations being followed in the production and supply of the goods and services they purchase or use.

This research report outlines the value—including direct and indirect benefits—of investing in literacy with the expected outcome of achieving higher levels of health and safety in the workplace. The intended audience includes employers, unions, individuals, and governments. Multiple research methodologies were used to obtain in-depth quantitative and qualitative data related to workplace health and safety issues and how they are impacted by literacy skills.

Through an online survey, individuals in the labour force, employers, labour organizations, and service providers to Aboriginal Peoples and immigrants, were questioned about the benefits, costs, and other types of linkages and connections between workplace health and safety and low literacy skills among workers. Respondents completed 319 questionnaires. The breakdown was as follows:

- 136 employers, including 4 Workers' Compensation Boards;
- 126 learners;
- 26 union representatives;
- 19 providers of services to immigrants; and
- 12 providers of services to Aboriginal Peoples.

While respondents gave high ratings to the importance of literacy skills in the workplace, training to build these skills was not always available through their workplaces. Responding employers had a much higher level of confidence in workers' understanding of health and safety policies than did any other responding group. Non-employer respondents expressed a higher expectation that literacy skills development opportunities would enhance workers' understanding of workplace health and safety. Survey respondents also provided examples of health and safety risks and actual incidents in the workplace that they felt were connected to literacy issues.

As part of this research study, 10 Canadian workplace literacy and learning programs were studied and analyzed for positive impacts on workplace health and safety. Each organization's initiatives were published as models of good workplace literacy practice in stand-alone case study reports. E-Library subscribers can download the reports at www.conferenceboard.ca/e-library/default.aspx.

The results of this research demonstrate the serious consequences of unsafe workplaces. Safe workplaces, on the other hand, operate more smoothly and have lower potential for risk and incidents. Workers with low literacy or language skills, who are assisted in raising their skills, are better able to act and react to workplace situations in accordance with approved health and safety measures. They are also better equipped to understand their own right to refuse work that is potentially unsafe. The overall conclusion from this research is that businesses and their employees realize health and safety benefits when literacy and/or language skills development is introduced in the workplace.

CHAPTER 1

Literacy's Importance to Workplace Health and Safety

Chapter Summary

- Workers who are able to communicate clearly with co-workers, supervisors, and customers contribute to safe, smooth operations.
- Low literacy skills represent a risk to the practice of workplace health and safety.
- This report demonstrates the value—including direct and indirect health and safety benefits—of investment in workplace literacy skills development.

Healthy, safe, workplace environments allow businesses to function as they were meant to. In order to establish the conditions that lead to healthy and safe workplaces, many organizations implement policies and procedures that must be followed by all personnel. Workplace health and safety is dependent on these policies and procedures being understood and carried out as directed. Adherence to health and safety policies and procedures demands more than just cooperation—it requires comprehension and communication skills among all concerned.

One of the keys to maintaining workplace health and safety is clear communication among workers, their supervisors, suppliers, and customers. Employers striving to create safe working conditions should consider whether workers have the literacy skills they need to perform work tasks in a safe manner. Workers who are able to communicate clearly with co-workers, supervisors, suppliers, and customers contribute to safe, smooth operations.

Healthy, safe, workplace environments allow businesses to function in the manner they were meant to.

LITERACY'S IMPORTANCE TO PUBLIC HEALTH AND SAFETY

The impacts of literacy skills go beyond the workplace and extend into the realm of public health and safety. Employers have a responsibility to ensure that standards and regulations are maintained and followed by all personnel. Low literacy skills are not an acceptable cause for substandard work or for not meeting quality thresholds. Consumers rely on rigorous quality, health, and safety standards and regulations being followed in the production and supply of the goods and services they purchase or use. The trust that exists between consumers and suppliers requires that quality standards be held to the highest tests. Many sectors—for example, food production and auto manufacturing—could not exist if they did not hold the health and safety of the public as paramount.

HEALTH AND SAFETY POLICIES AND LITERACY

Employers design and articulate their workplace health and safety directions and rules by setting out policies. These policies cover such issues as legalities, regulations, liabilities, and roles and responsibilities within the organization. Policies are then translated into orders and directions for the workforce so that employees may see where and how the policies apply to their jobs and respective roles. Many workplaces create manuals and other written documents as the main means of sharing the health and safety directives with workers. However, by relying on written materials as the vehicle for health and safety communications, organizations run a great risk, as some employees may not be able to read or properly understand the directives.

One of the challenges in raising literacy skills in the workplace is that many employers are not aware there are any literacy skills issues in their workforce.

Workplace health and safety policies are linked to literacy skills issues through their application. In workplaces that involve hazardous materials or potentially physically dangerous situations, organizational health and safety policies go beyond being merely useful to being the difference between life and death. Organizations may think they have done the best job possible by providing detailed, comprehensive health and safety practices. Manuals represent a convenient way of compiling detailed, and sometimes lengthy, health and safety information and practices into a comprehensive resource. The flaw in the logic is that when health and safety practices are communicated in written format, a disconnect occurs if workers' literacy skills are too low for them to read or comprehend the manual.

Manuals and other typical types of workplace health and safety publications tend to present valuable and pertinent information through a mix of text, charts, tables, figures, and numbers. Directions and steps for action are also typically handed down through text, flow charts, and conditional statements. Users of these documents need to have reading and numeracy skills at sufficient levels to read and comprehend the content. When it comes to health and safety, being able to read and understand "most" of the material or to "get the gist" of it is not enough. Precious time may be lost or exacting steps may not be taken if instructions are not followed when or how they should. As a result, injuries may occur, lives may be lost, and property may be damaged. Low literacy skills represent a risk, then, to the practice of workplace health and safety.

DENIAL—NOT IN MY WORKPLACE

One of the challenges in raising literacy skills in the workplace is that many employers are not aware there are any literacy skills issues in their workforce. Organizations tend to be task-focused and easily become too busy to concentrate on anything but their own production lines and deadlines. When production errors or health and safety incidents occur, the first response is to review policies, procedures, and practices to see if and where a discrepancy occurred. However, it may be that workplace practices were followed to the best of the abilities and knowledge of those involved. Individuals with low literacy and basic skills may not have been able to fully understand or follow set procedures. It does not always occur to organizations to view health and safety procedures through a literacy lens. Consideration of the written presentation of such procedures from the perspective of a user with low literacy skills would reveal the need to revisit that presentation in some organizations.

Safety manual users must have reading and numeracy skills at sufficient levels to read and comprehend the content.

Others believe that by implementing education standards for new hires, they will not recruit anyone with less-than-sufficient literacy and basic skills. However, there are a couple of flaws in this logic. First, an education credential should be, but is not necessarily, a guarantee of a certain level of literacy. Second, when individuals are not given the opportunity to continue challenging their skills, those skills will erode over time. Literacy skills are no exception. When jobs do not present opportunities to use and practice literacy and basic skills, individuals will tend to lose those skills unless they make efforts to maintain them outside of their jobs.

Even if the recruitment standards theory worked, there is the question of the existing workforce. In stable, mature labour markets, turnover is less likely. Therefore, organizations are faced with workers who may be experienced in their jobs, but who may lack the education credentials required of new hires. If employers do not offer their workers opportunities to improve their education level or their literacy and basic skills, then employed adults who wish to upgrade their skills must seek such opportunities on their own time and at their own expense.

Likewise, immigrant or Aboriginal workers who may not have the educational standing required of new recruits may also lack the English- or French-language skills necessary to communicate or understand workplace health and safety standards or procedures. While English- and French-as-a-second language training are distinct from literacy or basic skills training, they may serve the same basic need to communicate, understand, and be understood. For this reason, literacy and language-skills training are both addressed in this research study.

Some workers don't realize that their low literacy skills may pose a potential health and safety risk at work.

Those employers who do recognize that a literacy skills issue exists in the labour force may not acknowledge that it permeates their own organization. Without concrete proof of a problem, it is easy to assume the issue does not exist in one's own workplace. Recruitment standards compound the ease of denying a potential issue. However, there are several reasons why low literacy may be present in workplaces without employers, managers—even workers—knowing about it. Job tasks may not typically demand much in the way of literacy or basic skills. In such jobs, workers are not asked to use these skills and do not have the chance to maintain or build their skills at work.

Also, while day-to-day job functions may not demand the use of literacy skills, unusual circumstances, such as a health or safety incident or emergency, may suddenly make the use of literacy skills critical. Critical injuries and even death may result from inappropriate or inadequate action in an emergency situation. At the very least, damage to valuable equipment, materials, or property could ensue. For example, a co-worker, customer, or member of the public may suddenly be endangered by a fire, toxic chemical spill, or malfunctioning equipment. In an instant, a worker may need to be able to read the instructions on a fire extinguisher, how to interpret the warning symbols on a container of toxic chemicals, or how to find and operate the "E Stop" (i.e., emergency stop button) on an unfamiliar piece of machinery or equipment. Without a solid grounding in literacy and basic skills, workers may not be able to respond quickly and confidently to health and safety incidents.

Critical injuries—even death—may result from inappropriate or inadequate action in an emergency situation. Damage to valuable property or equipment could also ensue.

DENIAL—NOT ME

Workers who do have lower literacy or basic skills, have a number of reasons why they might not volunteer this information. If they are aware of having lower literacy skills, they may be reluctant to allow others to know for fear of losing their jobs. Cultural factors may make workers from at-risk populations (such as immigrants or Aboriginal Peoples) especially unlikely to self-identify as having low literacy skills. Individuals with lower literacy skills are often very aware of the negative stigma that is often attached to low literacy skills. Rather than have supervisors or colleagues find out, some individuals develop sophisticated coping mechanisms to deal with lower literacy skills. Others may be unaware that they could benefit from improving their literacy and basic skills. They also may not realize that their literacy skills are low enough to pose a potential health and safety risk at work.

ABOUT THE PROJECT

This research project aims to increase awareness—primarily on the part of employers and their learning partners—of the benefits of, and opportunities for, adult learning related to literacy and essential skills. The project report identifies the direct and indirect health and safety impacts and benefits of investment in

literacy skills development for employers and workers. The goal is to broaden the understanding of the connections between literacy skills and health and safety in the workplace. Through an examination of costs relating to workplace health and safety issues that may be attributable to low literacy skills, a business case for increasing investment in workplace literacy skills programs is supported.

In particular, the research:

- provides new data on the costs of low literacy skills with regard to workplace health and safety;
- demonstrates the benefits and impacts of improving literacy skills on workplace health and safety; and
- raises awareness of the importance of literacy skills to health and safety issues in the workplace.

The project's main objective is to demonstrate the value—including direct and indirect benefits—of investment in literacy with the expected outcome of achieving higher levels of health and safety in the workplace. The intended audience includes employers, unions, individuals, and governments.

To accomplish this objective, several secondary objectives have also been set out. These include:

- mapping out connections between literacy skills and workplace health and safety;
- identifying the benefits of improved literacy skills to workplace health and safety;
- identifying the costs of low literacy skills to workplace health and safety;
- determining a model for achieving improved workplace health and safety through increased investment in workplace literacy programs; and
- promoting investment in workplace literacy development programs to improve workplace health and safety results.

To achieve its objectives, this research project used multiple research methodologies to obtain in-depth quantitative and qualitative data concerning workplace health and safety issues and how they are impacted by literacy skills. Full case studies of good practice are presented in stand-alone reports, available at www.conferenceboard.ca/e-library/default.aspx.

HOW TO USE THIS REPORT

What You Don't Know Can Hurt You can serve as a planning tool. It provides analyses and models through which organizations can begin their own internal assessment of health and safety policies and practices in the light of literacy. It also provides examples of success stories from which organizations can learn. Overall, it provides a framework for conversations within and among Canadian organizations about workplace health and safety as it relates to literacy.

HOW THE REPORT IS ORGANIZED

This report is organized to present an analysis of the issues connecting literacy and workplace health and safety, as well as examples of good practice and suggested actions for employers and their learning partners.

- Chapter 2 examines Workers' Compensation Board data;
- Chapter 3 looks at the results of an original online survey;
- Chapter 4 highlights the challenges and solutions found in case studies of good practice; and
- Chapter 5 presents a model for action for employers and their learning partners, as well as conclusions from this study.

CHAPTER 2

Workplace Health and Safety—Hard Facts

Chapter Summary

- Workplace safety incidents present high costs and serious repercussions to businesses, individual workers, their families, and communities.
- The regulation of workplace health and safety provides incentives for organizations to give high priority to ensuring that work is performed safely.
- Addressing literacy skills in the workplace helps employers reduce the costs associated with health and safety issues, such as assessment rates and the costs of Workers' Compensation Board premiums and fines.

Many employers already demonstrate through their budget decisions that they see value in maintaining healthy and safe workplaces. According to a recent national study of training, learning, and development (TLD) in Canadian organizations, occupational health and safety accounted for an average of 8 per cent of TLD expenditures.[1] In turn, TLD expenditures represented 1.51 per cent of payroll, on average.[2] The substantial investment already made by employers in workplace health and safety suggests they believe in the old adage that "an ounce of prevention is worth a pound of cure."

Despite the measures taken, workplace safety incidents still occur. According to the Association of Workers' Compensation Boards of Canada, 995,757 claims were made in 2006 alone.[3] In 2005, over 330,000 time-loss injury claims were accepted, with teenagers accounting for 15,000 of these claims.[4] Furthermore, the number of fatalities in Canada associated with work has increased over the years—from 758 in 1993 to 1,097 in 2005.[5]

In 2005, workers 65 years old and over accounted for one-third of the fatalities.[6] This may be due to a number of factors, such as skill loss over time, lower educational attainment levels, changing job requirements that involve higher literacy skills, physical limitations, or any combination of these. Further research in this area may establish the root causes and potential pathways to improvement. Overall, the socio-economic changes to families and communities in the wake of workplace health and safety incidents involving injury, disease, or death are incalculable.

1 Hughes and Campbell, *Learning and Development Outlook*, p. 28.

2 Ibid., p. 15.

3 Association of Workers' Compensation Boards of Canada, "Key Statistical Measures."

4 Association of Workers' Compensation Boards of Canada, *National Work Injury*, pp. 3–5.

5 Ibid., p. 157.

6 Ibid., p. 160.

Table 1 compares the number of 2005 time-loss injury claims, accepted in Canada, by occupation.[7] Jobs involving higher health and safety risks, such as construction labourer, resulted in substantially more claims made than did low-risk occupations, such as management positions. The reported time loss is likely not representative of the true number of incidents, as many with low literacy skills would find completing the Workers' Compensation Board forms or accident logs intimidating. Such individuals may continue to work injured or may hide their injury to avoid any investigation into their literacy skills.

Table 1
Accepted Time-Loss Injuries by Occupation, 2005
(number of claims)

Occupation	Total
Intermediate occupations in transport and equipment operation	54,911
Trades and skilled transport and equipment operators	45,194
Labourers in processing, manufacturing, and utilities	35,422
Processing and manufacturing machine operators and assemblers	24,952
Trades helpers, construction labourers, and related occupations	14,117
Middle and other management occupations	4,510
Processing manufacturing and utilities supervisors and skilled operators	996
Professional occupations in arts and culture	284
Total	**337,930**

Source: Association of Workers' Compensation Boards of Canada.

THE COSTS OF WORKPLACE SAFETY

Health and safety in the workplace is a real bottom-line business issue. Beyond the social, physical, and emotional tolls of accidents and injuries incurred on the job, monetary considerations also move employers to provide safe workplaces. The regulation of workplace health and safety provides incentives for organizations to give high priority to ensuring that work can be, and is, performed safely.

Each province in Canada has its own Workers' Compensation Board/Commission (WCB). Among the territories, Yukon has its own and the Northwest Territories and Nunavut have a combined WCB. The WCB administers the workers' compensation legislation (generally the *Workers' Compensation Act*) of the province/territory they are in. As part of the cost of being able to conduct business, organizations are charged a premium by their WCB. This premium varies, however, with the relative safety of the industry sector and by the organization's current workplace accident rating.

Sectors that involve heavy machinery, moving parts, high speeds, and power carry a higher risk of injuries or fatalities resulting from workplace accidents.

To ensure the compensation system works smoothly, legislation includes provisions for workers and employers to be fined or penalized if they do not comply. Fines are amounts of money that the court can order a worker or employer to pay for an offence following a successful prosecution. Penalties do not require court proceedings and can be appealed. Penalties may be incurred for failing to comply with a WCB provision.

HEALTH AND SAFETY BY SECTOR

Judging by the numbers, some industry sectors are more prone to health and safety incidents than others. Sectors that involve heavy machinery, moving parts, high speeds, and power carry a higher risk of injuries or fatalities resulting from workplace accidents. This is demonstrated by Canadian workers' compensation claim evidence. Between 2003 and 2005, there were over 80,000 time-loss injury workers' compensation claims annually in

7 Association of Workers' Compensation Boards of Canada, *National Work Injury*, pp. 41–45.

the manufacturing sector, more than 30,000 in construction industries, and over 24,000 in the transportation and storage sector.[8] Statistics of fatalities resulting from workplace incidents followed similar trends: the manufacturing, construction, and transportation and storage sectors accounted for half of all workplace fatalities in 2005.[9] These sectors are therefore more likely than others to require workers to adhere to health and safety policies and procedures.

Workplace safety incidents impose high costs and serious repercussions on businesses, individual workers, their families, and communities.

Typically, workers in sedentary jobs—or jobs that do not involve tasks such as handling heavy machinery or moving parts—do not have high rates of workplace health and safety incidents involving injuries or fatalities. Not surprisingly, evidence shows that the real estate and insurance sectors saw significantly fewer accepted time-loss injury claims in the same period (an average of just over 1,900 annually).[10] Similarly, the number of workplace fatalities was also much lower.[11] Considering how different the nature of the work performed and the potential for injury is across industries, it is not surprising to see evidence of widely different impacts of workplace health and safety incidents.

Workplace safety incidents impose high costs and serious repercussions on businesses, individual workers, their families, and communities. The costs of workplace lost time injuries potentially include property damage, lost production, lost manager and supervisor time (as they deal with the accident and with the injured person), costs to comply with Ministry orders, higher insurance premiums, and lower productivity from the injured employee while he/she recuperates on light duty.[12]

8 Association of Workers' Compensation Boards of Canada, *National Work Injury*, p. 46.

9 Ibid., pp. 204–206.

10 Ibid., p. 47.

11 Ibid., pp. 204–206.

12 Canadian Manufacturers & Exporters and the Workplace Safety and Insurance Board, *Business Results Through Safety*, p. vii.

Worker's Compensation in Canada

WCBs are funded by employers who are charged a certain dollar amount per $100 of payroll. This amount is known as the "assessment rate" or "premium." The money collected from employers goes into a fund, generally known as the Accident Fund. Monies from this fund go toward providing wage-loss benefits to workers, injured on the job, who are unable to work due to their injury; providing medical aid and rehabilitation to workers injured on the job; and to the general administration of the WCB.

Each province/territory sets an average provisional assessment rate. Every employer organization, however, does not pay the same assessment rate. Instead, individual employers' assessment rates are based on the following:

- **Industry or class assessment rate**—different industries, classes, and occupations can be charged different assessment rates, since the inherent occupational danger varies by job/industry.
- **Experience rating**—an individual employer's assessment rate may be increased or decreased based on how many work-related injuries/illnesses have occurred at the employer's place of business.

Source: Association of Workers' Compensation Boards of Canada.

Assessment Rates

Employer assessment rates[1] are calculated by factoring the employer's injury record and the collective injury record of other employers who share the same level of risk. Assessment rates are calculated by examining the following costs:

- **Direct costs**—composed of lost wages, medical costs, and rehabilitation expenses for the firm's injured workers.
- **Indirect costs**—the costs of running the workers' compensation system that cannot be apportioned to any one claim (for example, administration costs).

These, along with a calculation that represents the collective injury experience of employers with comparable risk, are used to determine a firm's assessment rate.

1 Workers Compensation Board of Manitoba, "The Assessment Rate Setting System."

Source: Workers Compensation Board of Manitoba.

Sectoral differences in the frequency of injuries and fatalities are reflected in the different assessment rates set by provincial and territorial Workers' Compensation Boards, as shown in Table 2.[13]

Assessment rates are a real cost to companies working in those higher-risk industries. They act as a form of insurance—the money collected goes toward a fund that pays for accidents. And like other forms of insurance, inherent risk and reliability are tied to the amount of the premium paid. Consequently, employers who wish to reduce their assessment rates and their costs strive to keep their workplaces healthy and safe. Reducing the risk of health and safety incidents at work is one way for an organization to improve or maintain its track record and keep its premiums low.

LOWERING WORKPLACE HEALTH AND SAFETY COSTS

Employers are responsible for ensuring that occupational health and safety measures are not only in place, but also that they are followed. To be of any use, health and safety policies need to be enforced in practice. A safe workplace is one where job tasks and work procedures have been carefully thought out and their inherent risks identified. Occupational health and safety measures keep workers safe on the job through established work procedures.[14] Occupational health and safety deals with such issues as:

- inspection of worksites;
- stop-work orders;
- right to refuse unsafe work;
- Workplace Hazardous Materials Information System (WHMIS);
- personal protective equipment;

13 Association of Workers' Compensation Boards of Canada, "2008 Assessment Rate Tables," pp. 5–35.

14 Association of Workers' Compensation Boards of Canada, "Canadian Workers' Compensation 101."

Table 2
Assessment Rates by Province/Territory
($ per $100 of payroll)

	Industry				
Province	**Logging—conventional**	**Metal mining—gold**	**Construction—residential buildings**	**Transportation—general trucking**	**Financial institutions**
Alberta	2.89	–	2.23	3.87	0.25
British Columbia	8.93	1.92	4.06	4.87	0.08
Saskatchewan	19.62	1.64	5.42	3.72	0.19
Manitoba*	7.85–21.27	1.17–3.88	2.38–15.44	1.57–9.81	0.14–0.58
Ontario	10.99	7.90	8.80	5.70	0.17
Quebec	13.94	8.20	Various	6.98	0.61
New Brunswick	5.07	3.32	3.59	4.58	0.40
Newfoundland and Labrador	1.09	3.06	5.38	5.81	0.57
Prince Edward Island	16.69	–	6.06	3.93	0.26
Nova Scotia	5.07	2.48	5.01	5.26	0.44
Northwest Territories/Nunavut	3.65	2.46	3.66	5.51	0.70
Yukon	11.73	3.61	9.42	5.42	1.10

*For Manitoba, the two amounts represent the high and low ends of a range, reflecting Manitoba's built-in experience rating system.
Source: Association of Workers' Compensation Boards of Canada.

- handling and storage of materials;
- confined spaces;
- occupational health and safety (OHS) committees;
- roles and responsibilities of employers, workers, and others;
- joint health and safety committees;
- training requirements;
- fall protection;
- enforcement;
- designated/regulated substances;
- controlled products;
- first aid training for the workplace; and
- prevention.[15]

Several of these job-performance-related safety issues can be influenced by literacy skills. The ability to read and understand policies regarding the right to refuse unsafe work, for instance, is essential to a worker's decision to undertake or refuse work. A worker must not only be able to recognize unsafe work but also be aware of alternative courses of action available to him or her. Understanding policies regarding the roles and responsibilities of employers, workers, and others also plays into these scenarios, as workers will need to know who to turn to and what to expect from themselves and others in the event of an accident or safety incident. First aid training and the ability to recognize the meaning of hazardous symbols, or to understand printed warnings of danger, are additional components of safe workplaces that may be jeopardized by low literacy skills.

Literacy skills may also affect the ability to meet regulatory responsibilities as they pertain to these issues. For example, correct and approved handling of designated or regulated substances and controlled products can falter if written codes, instructions, and regulations are not understood by the workers handling the products. Written training materials on safe work procedures, such as the proper handling and storage of materials, are another area in which occupational health and safety can only be maintained if workers are able to read and understand the directions provided. Similarly, reading and comprehension of WHMIS materials and directions can require a high level of literacy.[16] Addressing literacy skills in the workplace is a course of action for employers that will help them reduce the costs—such as assessment rates and the costs of Workers' Compensation Board premiums and fines—associated with health and safety issues.

15 Association of Workers' Compensation Boards of Canada, "Canadian Workers' Compensation 101."

16 Campbell, *All Signs Point to Yes*, p. 12.

CHAPTER 3

National Survey Results

Chapter Summary

- Analysis of the survey data gives rise to a new understanding of how literacy skills can affect health and safety in the workplace.
- Survey respondents provided information on how they felt literacy skills development efforts could improve health and safety within their organizations, and to what level.
- Real-life examples of health and safety incidents and risks that were deemed to be caused by literacy (or language) issues were reported by survey respondents.

A variety of research methodologies were used in this project to identify direct and indirect health and safety impacts and the benefits of investment in workplace literacy skills development. New data were uncovered through a national survey of literacy's impact on workplace health and safety. The survey was designed to help demonstrate the value (in quantitative terms) of investment in literacy by identifying the costs and benefits to workplace health and safety due to improved literacy skills. The survey data, gained from a wide range of stakeholders, gave rise to a new understanding of how literacy skills can affect health and safety in the workplace.

The survey gave employers, union representatives, and individuals in the labour force, the opportunity to provide their views and input to the research. In addition, service providers to Aboriginal Peoples and immigrants were invited to participate in the survey. These service providers were asked to present information about the impacts of literacy skills development efforts on behalf of those they serve. Service providers were targeted, as they are considered more likely to respond to a written questionnaire than would individuals of Aboriginal descent or immigrants with lower literacy skills.

New data were uncovered through the national survey of literacy's impact on workplace health and safety.

SURVEY DESIGN

Targeted questionnaires were created for populations of potential respondents, including individuals in the labour force, employers, labour organizations, and service providers to Aboriginal Peoples and immigrants. Questionnaires probed for information detailing the benefits, costs, and other types of linkages and connections between workplace health and safety and low literacy skills of workers. The questionnaires sought both quantitative data and qualitative information. A combination of closed and open questions generated a set of comparable data for

the statistical analysis and a substantial body of qualitative information that shed light on goals, objectives, challenges, strategies, opportunities, and impacts of programs and activities.

Invitations to complete the online survey were issued to more than 7,000 organizations and individuals from the target populations. External organizations and agencies—including the Government of Saskatchewan, the Government of Newfoundland and Labrador, and the Industrial Accident Prevention Association—helped advertise the survey by posting a link to it on their websites.

Most of the survey questions were common to all the questionnaires regardless of the targeted group. These common questions were adapted to suit the respondents' context and role, while seeking the same kinds of information. Answers to these questions were grouped together and analyzed so as to reveal the overall trends among the survey respondent populations. Where unique questions were asked of targeted populations, their answers were analyzed and are reported here separately from the general findings.

Invitations to complete the online survey were issued to more than 7,000 targeted organizations and individuals.

METHODOLOGY CONSIDERATIONS

Organizations and individuals responding to the survey represented all major industries, but education and health care were over-represented. In addition, the survey sample was made up of more large organizations and more organizations from Alberta and Ontario than were proportionally found in the Canadian population of organizations. Furthermore, the survey was offered only in English, thus limiting or prohibiting responses from individuals who were not literate in English.

The sample size of 319 respondents is not large enough for complex analyses. Thus, the results described here report simple frequencies and cross-tabulations that look for differences by gender, age, income, etc. Further, it should not be assumed that the results can be applied generally to the overall Canadian population or to any other subgroup targeted at the national level, in all cases. Given the low number of respondents from some of the at-risk populations, data from these groups should be viewed as exploratory only. Yet, how organizations and individuals benefit, or are impacted by literacy skills development opportunities, is an important line of inquiry that can guide policy and strategic decision making with regard to literacy skills.

The survey included the following definition of literacy and basic skills for respondents to consider as they answered the questions.

Workplace literacy or basic skills include skills needed for reading, writing, math, problem solving, teamwork, and continuous learning in the workplace. For some workplaces, they also include basic computer, listening, and oral communications skills. They may be developed through:

- stand-alone workplace literacy or basic skills programs and activities; and/or
- job-specific or technical training programs and activities that include a literacy or basic skills component—even if it is not so-named.

Training may be offered by the employer, by a union, or jointly; or at a place of work or elsewhere.

Researchers studying the impacts of training initiatives face many hurdles. Methodological challenges that make it difficult to establish a definitive link between outcomes, and impacts and participation in education and training, include:

- defining and measuring training activities (especially when bundled with other human capital strategies);
- identifying health and safety improvements in organizations that do not employ specific tracking systems of such improvements;
- unravelling interactions between the factors; and
- obtaining a response base that is sufficient to generalize results to larger populations of general or at-risk groups of adults.

SURVEY FINDINGS

Respondents completed 319 questionnaires. The respondents were broken down as follows: 136 employers, including 4 Workers' Compensation Boards; 126 workers; 26 union representatives; 19 providers of services to immigrants; and 12 providers of services to Aboriginal Peoples. A summary of industries represented by survey respondents is shown in Table 3. A summary of where responding organizations chiefly operate is shown in Table 4. Table 5 shows how many full-time employee equivalents work in the respondents' organization. (Not all respondents answered this question in the survey.) Answers to common questions that were asked of all respondents are analyzed along with highlights of results from the customized questions asked on behalf of at-risk populations, including Aboriginal Peoples and immigrants.

Table 3
Survey Respondent: Industries Represented
(per cent)

Industry (n=319)	Survey responses
Education and health care	30.1
Government	11.6
Not-for-profit	9.7
Not specified	9.1
Manufacturing and fabricating	5.6
Banking, financial services, and insurance	4.7
Food, beverage, and tobacco products	4.1
Services: professional, legal, scientific, and technical	3.4
Transportation and utilities	3.1
Oil and gas	2.8
Other	2.7
Construction and real estate	2.5
Chemical, pharmaceutical, and allied products	1.9
Arts, entertainment, and recreation	1.9
Natural resources	1.3
Retail trade	1.3
Services: accommodation, meals, and personal	1.3
Communications and telecommunications	1.3
High-technology	0.9
Wholesale trade	0.6

Source: The Conference Board of Canada.

Table 4
Survey Respondents: Location of Organizational Operations
(per cent)

Location (n=319)	Survey responses
Alberta	23.2
British Columbia	12.9
Manitoba	5.3
Newfoundland and Labrador	0.9
New Brunswick	0.6
Nova Scotia	3.8
Northwest Territories	0.6
Ontario	24.8
Prince Edward Island	0.3
Quebec	3.4
Saskatchewan	10.7
Nationally	8.8
Internationally	4.7

Source: The Conference Board of Canada.

Table 5
Survey Respondents: Size of Organizations Represented
(per cent)

Organization size (n=253)	Survey responses
Large (over 500 full-time workers)	41
Medium (between 101 and 500 full-time workers)	30
Small (up to 100 full-time workers)	29

Source: The Conference Board of Canada.

WORKPLACE SKILLS DEVELOPMENT

Survey respondents were first asked to focus on the importance of various literacy and basic skills to workers' job tasks. The skills listed for respondents to consider included the following:

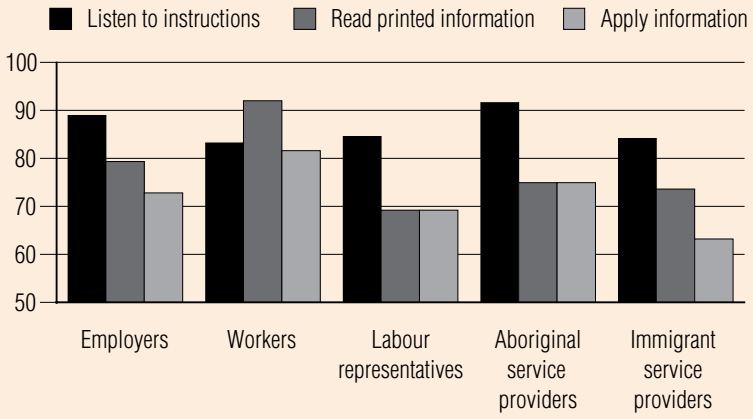
- read printed information;
- write documents for others;
- listen to instructions;
- record data;
- make estimates and calculations;
- identify problems;
- work as part of a team;
- use a computer;
- apply information; and
- speak effectively.

Survey respondents were asked to consider these skills against a four-point scale, with "not at all important" as the lowest response and "very important" as the highest. The majority of respondents from all target populations consistently rated every skill in the list as "very" or "somewhat important." Respondents were also offered a "don't know" option, but only a handful of respondents checked this response. The high ratings reveal the high value placed on literacy skills in the workplace and point to their universal relevance to the various target audiences, including employers, unions, and workers.

Despite the importance placed on literacy skills in the workplace, training to build these skills is not always available through the place of work.

Certain skills on the given list were rated by respondents to a particularly high degree as "very important." The ability to "listen to instructions," for instance, was selected as "very important" by at least 80 per cent of respondents in each target population. (See Chart 1.) Similarly, "read printed information" was rated as "very important" by almost 70 per cent of respondents in each target population. Interestingly, individual workers were the most likely of any respondent group (at 92 per cent of respondents in this target population) to rate this ability as "very important." In addition, while the ability to "apply information" was marked as "very important" by at least two-thirds of respondents in each target population, over 80 per cent of respondent workers rated this skill as "very important." The fact that workers gave higher importance to some skills than did employers may be a function of workers' positions—working on the front lines allows workers to clearly appreciate what skills are needed to perform their jobs.

Chart 1
Importance of Skills—Rated as "Very Important"
(per cent of respondents)



Source: The Conference Board of Canada.

Despite the importance placed on literacy skills in the workplace, training to build these skills is not always available through the workplace. Forty-five per cent of employer respondents and 55.6 per cent of worker respondents said that training in the workplace to improve the ability to "listen to instructions" is never, or only seldom, available. Similarly, 56 per cent of employer respondents and 58 per cent of worker respondents indicated that training in the workplace to improve the ability to read printed information is never, or only seldom, offered. If formal training is not available, it is still possible for individuals to maintain skills if they are able to use and practice them as part of their work. However, many jobs are not designed to demand regular literacy skills use, nor to allow literacy skills to be practiced and maintained.

Survey respondents were also asked about the actual provision of workplace literacy skills training. One-third of employer respondents indicated that such training

was currently available to workers. One-fifth of worker respondents said the same. However, just under one-third of employer respondents, and the same share of union representatives, said this type of training had never been considered by their organizations. While the responding group of service providers to Aboriginal Peoples was admittedly very small (n=12), 41 per cent said that they did provide literacy training; 16.7 per cent stated that literacy training was in the planning stages; and just one-quarter of these respondents reported that this type of training had never been considered. Meanwhile, almost 58 per cent of the responding group of service providers to immigrants (n=19) stated that they provided literacy training, while just over one-quarter said that literacy training was being considered or was in the planning stages.

Scheduling or reorganizing work so that some of their workers could attend workplace literacy training was noted as a challenge for a number of employers.

Survey respondents were also asked about the provision of workplace health and safety training. Ninety-four per cent of employer respondents reported that they provided workplace health and safety training. At the same time, 88.3 per cent of employer respondents said that participation in health and safety training was mandatory for workers in their organizations. Workplace health and safety training was provided in English by almost 98 per cent of employer respondents. This training was offered in French by 23.4 per cent of employer respondents. However, the high rate of responses for "English" is likely due in part to this survey being offered only in English. Workplace health and safety training was provided by 7.6 per cent of employer respondents in languages other than English or French. Ninety-two per cent of labour organizations reported that they provided workplace health and safety training. Workplace health and safety training was provided in English by almost 96 per cent of labour respondents. No labour respondents reported offering this training in French. Again, the high rate of responses for "English" is likely due, in part, to this survey being offered only in English.

Seventy-five per cent of service providers to Aboriginal Peoples and 52.6 per cent of service providers to immigrants indicated that they provided health and safety training for the workplace.

Since language skills pose potential issues for Aboriginal Peoples and immigrant workers, the survey asked about worker fluency in regard to workplace health and safety training. Two-thirds of employer respondents indicated that they believed their workers were perfectly fluent in the language of health and safety instruction. Over 80 per cent of workers agreed.

Seventy-four per cent of worker respondents reported being provided with health and safety training for the workplace. Moreover, 54.3 per cent of worker respondents said that participation in health and safety training was mandatory in their workplace. Workplace health and safety training was provided in English to almost 98 per cent of worker respondents, and in French to almost 12 per cent of worker respondents. However, the high rate of responses for "English" is likely due in part to this survey being offered only in English.

Ninety-two per cent of labour organizations reported that they provided workplace health and safety training.

WORKPLACE TRAINING CHALLENGES

The survey asked respondents to consider whether any work challenges resulted from the provision of workplace literacy training. Employers were the only respondent group (n=48) to report any notable issues. (See Chart 2.) Scheduling or reorganizing work so that workers may attend workplace literacy training was noted as a challenge for some employers. Thirty-five per cent of responding employers said that production schedules were difficult to maintain due to worker participation in literacy skills upgrading efforts, and 56 per cent said work schedules had to be reorganized. Furthermore, almost 30 per cent reported that more work was created for others, and 35 per cent said work areas were left short-staffed. Individuals face difficult decisions when

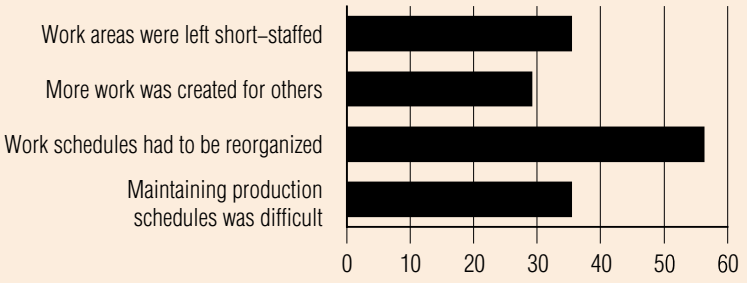
they know that training will create scheduling and work-loading issues for others. Smaller organizations will feel the pinch of challenges more strongly than larger ones, as they generally do not have the extra staff or support services available to compensate for absent staff. Supervisors are inevitably caught in the middle of the crunch: they are expected to support individuals who wish to upgrade their literacy skills, but are also expected to meet production deadlines and churn out consistently high-quality products.

Survey respondents were asked to consider a number of potential barriers to starting or continuing to offer workplace literacy or basic skills training against a four-point scale, with "not significant at all" as the lowest response and "extremely significant" as the highest. Time—or lack thereof—was described by some survey respondents as a barrier to workplace literacy skills development efforts. One-quarter of employer respondents and 35 per cent of labour respondents listed a lack of time to design a learning program as a "very significant" or "extremely significant" obstacle. An inability or an unwillingness on the part of individuals to attend training on personal time was reported as a barrier on some level (from "somewhat" to "extremely" significant) by over 80 per cent of service providers to Aboriginal Peoples and over 50 per cent of service providers to immigrants.

Survey respondents reacted to a list of specific skills by indicating whether they expected that workplace literacy program participants would gain that skill.

The ability to define whether or not a learning program was successful was another obstacle for some respondents. The difficulty in establishing a return on the investment in training was rated as a "very" or "extremely significant" barrier for 23 per cent of employer respondents. The difficulty in evaluating the effectiveness of improving skills and productivity was rated as a "somewhat" or "very significant" barrier by just over half of employer respondents; by two-thirds of service providers to immigrants; and by the same share among labour representatives. Challenges related to program effectiveness potentially put the life of a program at risk: it is difficult to make a business case for an investment with a questionable outcome.

Chart 2
Work Challenges for Employers That Resulted From the Provision of Literacy Training
(per cent of employer respondents, n=48)



Source: The Conference Board of Canada.

"Construction is a low-bid industry, and training allowances are rarely included in pricing."

—Survey respondent

BENEFITS OF WORKPLACE LITERACY SKILLS DEVELOPMENT

The survey asked respondents to consider potential and observed benefits of workplace literacy skills development opportunities. Survey respondents reacted to a list of specific skills by indicating whether they expected that participants in a workplace literacy program or initiative would gain that skill. Respondents also reported whether or not they had actually observed that participants had gained that skill following participation in a workplace literacy program or initiative. Table 6 presents a summary of the averaged results from all respondents to this question, of whom almost half were employers and another third comprised labour representatives and service providers to Aboriginal Peoples or to immigrants.

The response patterns of the different target groups that answered the survey were remarkably similar. All found that the reality of observed skills improvement fell somewhat short of their expectations. However, this may not be an indication of the programs' failure to measure up. Improving literacy skills takes time; respondents may

Table 6
Expected and Observed Skills Gains
(per cent)

Skill (n=106)	Expected to gain	Observed gain
Improved ability to apply information and analysis	85	57
Improved ability to communicate in the workplace	83	61
Improved ability to use documents (safety instructions and assembly directions and maps)	81	57
Improved ability to use computers and other technology	77	58
More positive attitude toward change	77	49
Better ability to work in teams	76	59
Improved understanding of the culture of the workplace	76	48
Improved ability to use numbers (in figures, charts, and tables)	72	38
Improved ability to use prose writing (reports, letters, computer and equipment manuals)	71	47
Improved capacity to think critically and make decisions	69	42
Greater willingness and ability to learn for life	68	43

Source: The Conference Board of Canada.

have begun their workplace literacy initiatives thinking that change would happen more quickly than they observed. The high marks for improved skills do point to respondents' beliefs and observations that participation in literacy skills improvement efforts would and did impact the skills listed in Table 6. These skills are widely used in workplaces of all sizes—across all sectors and regions. Each skill plays a role in promoting communications in the workplace and in ensuring smooth operations with minimal misunderstandings or errors. Maintaining a high level of health and safety in the workplace depends on everyone being able to communicate, make decisions, and work together to achieve common goals.

The survey also asked respondents to consider performance factors since starting workplace literacy efforts. Employers and workers were asked to rate performance factors in their organizations, while other respondents were asked to provide ratings based on any client feedback they had received about organizational performance. Table 7 presents a summary of the averaged results from all respondents who answered this question.

Table 7
Performance Factors Affected by Workplace Literacy Efforts
(per cent)

Performance factor (n=79)	Better or significantly better
Productivity	61
Quality of products/services	61
Health and safety practices	58
Workplace communications	58
Customer satisfaction	51
Error rates	48
Ability to deal with change	38
Worker retention	28
Worker absenteeism	24

Source: The Conference Board of Canada.

Once again, the response patterns of the different target groups that answered the survey were similar. All rated the listed performance factors as better or significantly

better since workplace literacy efforts were introduced. Over 60 per cent of respondents reported that the performance factors of productivity and the quality of products or services were improved. Health and safety practices and workplace communications were rated as improved by 58 per cent of respondents. These two factors work hand in hand: improved communications between co-workers, between workers and supervisors, and between workers and clients, support improved compliance with health and safety practices and policies. The improvement in error rates, as reported by 48 per cent of respondents, also serves to connect literacy skills improvement with reductions in mistakes and errors on the job. As a result, the potential for health and safety incidents is reduced. High performance in the workplace is a result of a safe and healthy workplace environment—smooth, efficient operations are compliant operations.

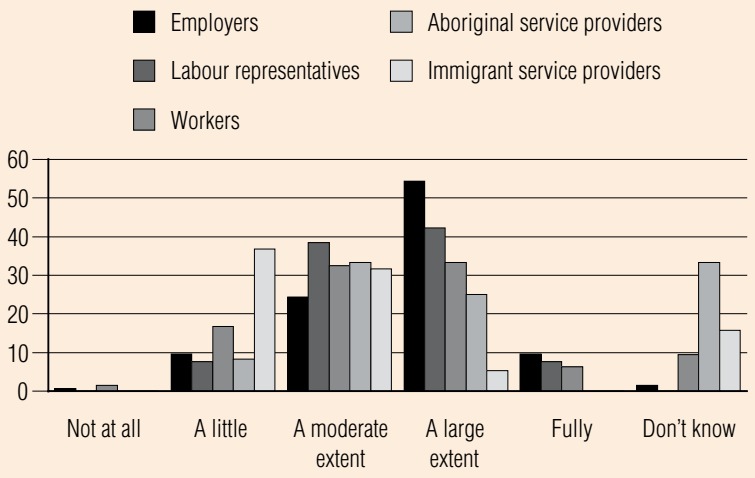
The gap—between how employers rate workers' understanding and how others do—creates the potential for misunderstandings and accidents to occur.

HEALTH AND SAFETY IMPACTS OF WORKPLACE LITERACY SKILLS DEVELOPMENT

The survey asked respondents about health and safety in the workplace and about potential links to literacy skills. They reported on their perception of how well health and safety policies were understood by workers in their organizations. Respondents were also asked to what extent they believed health and safety could be improved within their organizations. Finally, they were asked to consider to what extent health and safety could be improved in their organizations through efforts to improve workers' literacy skills. All three questions were queried on a five-point scale, from "Not at all" to "Fully," plus a "Don't know" option. Charts 3, 4, and 5 show the results for each respondent group to these questions.

Chart 3 shows that responding employers had a much higher level of confidence in workers' understanding of health and safety policies than did any other responding group. Sixty-four per cent of employer respondents said they felt that health and safety policies were understood fully or to a large extent, while 50 per cent of responding labour representatives and 40 per cent of workers agreed. The majority of immigrant service agency respondents (68 per cent) said their workers understood health and safety policies only a little or to a moderate extent. Their confidence then dropped off sharply: just 5 per cent said workers understood health and safety policies to a large extent, and none felt that workers fully understood such policies. Responding Aboriginal service agencies also expressed doubts as to workers' understanding of health and safety policies. Forty-two per cent said workers only understood health and safety policies a little or to a moderate extent. This gap—between how employers rate workers' understanding and how others do—creates the potential for misunderstandings and accidents to occur. Because employers are already confident, they are unlikely to see the need to provide training to upgrade workers knowledge and understanding of the health and safety policies of the workplace.

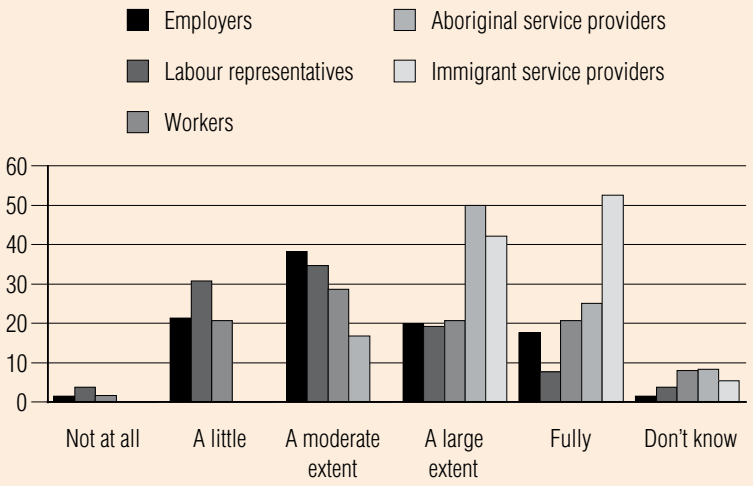
Chart 3
Workers' Understanding of Health and Safety Policies
(per cent of respondents)



Source: The Conference Board of Canada.

Chart 4 shows that responding service agencies were much more likely to say there was room for improvement in workers' understanding of health and safety policies than were workers, employers, or labour organizations. Ninety-five per cent of immigrant service agencies and 75 per cent of Aboriginal service agencies felt that workers' understanding of health and safety policies could be improved fully or to a large extent. By comparison, only 41 per cent of workers, 38 per cent of employers, and 27 per cent of labour organizations agreed. The high proportion of service agency respondents who said there was room for improvement is consistent with their lower levels of confidence in workers' understanding of health and safety policies.

Chart 4
Room for Improvement in Health and Safety Understanding Levels
(per cent of respondents)



Source: The Conference Board of Canada.

Chart 5 shows that responding service agencies had more confidence in the potential of literacy skills upgrading to improve workplace health and safety than did employers, workers, or labour organizations. Ninety per cent of immigrant service agencies and 83 per cent of Aboriginal service agencies felt that workers' understanding of health and safety policies could be improved fully or to a large extent by literacy skills upgrading. By comparison, just 28 per cent of responding workers, 27 per cent of labour organizations, and 20 per cent of employers agreed. The high expectations among service agencies shows that they clearly see potential workplace health and safety benefits to offering literacy skills improvement opportunities to the individuals they work with. The lower expectations among the other groups—and especially among the responding employers—fit with their higher confidence levels in workers' understanding of health and safety policies.

Survey respondents were also asked to provide any examples of health and safety incidents in the workplace that they felt were connected to literacy issues. A number of incidents were reported and described by respondents. In some cases, a risky environment was created but did not lead to an actual incident. In other instances, a health and safety incident did occur. A selection of the reported workplace health and safety risks and incidents that were deemed to be caused by literacy (or language) issues are included here.

Responding service agencies were much more likely to say that there was room for improvement in workers' understanding of health and safety policies.

HEALTH AND SAFETY RISKS REPORTED

The health and safety risks reported by survey respondents include chronic and occasional misunderstanding of the health and safety information and warnings used in the workplace; an inability to use, or the misuse of, equipment or procedures; and individuals not following established workplace procedures. Any of these risks could have led to a serious health and safety incident involving one or more individuals. Without correction or improved understanding of how the risk occurred, the risk of incident or injury is likely to repeat itself.

Health and Safety Information and Warnings Not Understood

- Instructions were communicated to employees about work being done in the hallway leading to an employee "break room": "Be careful as floor is slippery." However, for many of the employees at this organization, English was a second language. At least one individual knew very little English and did

not understand the verbal or written instructions. This worker (and possibly others) was at risk of slipping and falling.

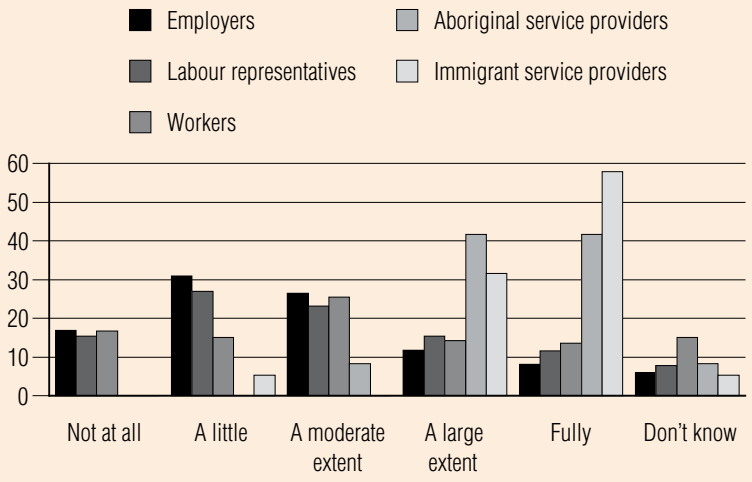
- Workers were instructed not to pick up over-pressurized aerosol cans. However, at least one worker was unable to comprehend the instruction and the importance of following the instruction due to language issues. Handling the cans could have led to an explosion, resulting in potentially severe injuries.
- Workers were reported as lacking an understanding of Material Safety Data Sheets (MSDS) for products they were working with. This could have led to injuries or illness if the materials were not handled according to their instructions. Workers at this organization also lacked a solid understanding of their right to refuse unsafe working conditions. Without knowing their rights, they might work in unsafe environments or perform unsafe tasks.
- Employees at another organization were reported to have a deficient understanding of safety procedures. As a result, they engaged in unsafe practices, including untying safety lines without knowing what they were for, not wearing proper personal protective equipment required for the job, and not complying with posted safety signs. The employees were also not clear on their right to refuse unsafe work. Any of the unsafe work practices undertaken could have led to injuries or equipment losses.

Incidents reported by survey respondents included chronic and occasional misunderstanding of the health and safety information and warnings used in the workplace.

Inability to Use, or the Misuse of, Equipment or Procedures

- Some staff would not be able to use a defibrillator effectively due to language difficulties.
- Some staff did not have the reading skills necessary to read the telephone instructions on how to access an outside line. In an emergency, they would not be able to telephone for help.
- Employees were unable to follow standard operating procedure for machine set-up and maintenance. Improper operating procedures could have resulted in machine or product damage or worker injury.

Chart 5
Literacy Skills Training Could Improve Health and Safety Understanding
(per cent of respondents)



Source: The Conference Board of Canada.

Not Following Procedures

- An incorrect work permit was sought and obtained due to a worker's inability to read a flow diagram correctly. The erroneous interpretation of a workplace document led to incorrect implementation of regulations.
- The cleaning staff at one organization did not empty garbage receptacles on a regular basis. Further, they were not able to read notes left for them by organizational staff. At one point, this resulted in garbage cans sitting full for over a week. This would have constituted a health hazard to employees.
- At a health-care facility for at-risk elderly patients, workers administered incorrect medications and incorrectly charted patient care routines. These errors could have seriously jeopardized the health of the elderly patients in the workers' care.

HEALTH AND SAFETY INCIDENTS REPORTED

The health and safety incidents reported by survey respondents include chronic and occasional misunderstanding of the health and safety information and warnings used in the workplace; an inability to use, or a misuse of, equipment or procedures; and individuals not following established workplace procedures. These incidents led to serious health and safety incidents involving one or more individuals. Some of the organizations involved

have already taken steps to understand how the incident occurred and how they can prevent the risk of incident from happening again in the future.

Health and Safety Information and Warnings Not Understood

- A staff member used a knife to chip ice out of a freezer. In the end, he not only punctured the freezer wall and released Freon gas, but also cut his finger. He could not read the safety warning inside the freezer or the instructions for defrosting. The impacts included the staff person's injury, the repairs required for the freezer, and the environmental hazards of Freon gas release.
- A worker received third-degree burns to part of his body while using a hot water high-pressure washer. His supervisor, whose first language was not English, could not read the English operating instructions and so could not pass on the hazard warnings of using the high-pressure washer. This incident forced a shutdown of the project. Workers were held on standby status until after the initial government safety inspector's accident investigation was completed. In addition to the severe injury, lost project and work time resulted.
- An employee, who could not read the many signs posted, was unaware that he was working in an area that did not have a nuclear source locked out. He was exposed to neutron radiation, which can lead to health problems such as cancer after a latency period of up to 20 years.

Inability to Use, or Misuse of, Equipment or Procedures

- One organization reported property damage resulting from an employee's inability to understand the manufacturer's or the company's operating guidelines. The employee felt that the guidelines were too detailed and difficult to understand. Poor-quality goods were consequently produced, and injury or equipment damage could also have resulted.

Not Following Procedures

- Employees were exposed to asbestos because they did not understand the removal procedures for asbestos materials and did not understand the posted hazard signs. As a result, regulatory inspections followed, along with related workplace orders. The company then rewrote its workplace procedures and made efforts to re-educate all of its employees.
- A worker drank from a bottle, thinking its contents were water. However, it was a bottle of chemicals that had not been WHMIS-labelled.

A few employer survey respondents also offered details on the costs associated with health and safety incidents linked to low literacy skills issues. The direct and indirect costs resulting from health and safety incidents as reported by respondents are listed below.

Some organizations have already taken steps to understand how an incident occurred and how they can prevent the risk of it happening again in the future.

COSTS OF HEALTH AND SAFETY INCIDENTS REPORTED

Direct costs

- Time away from work (ranging from three days to one year).
- Compensation, medical, or rehabilitation costs (ranging from $500 to $600,000).
- Wage supplements and/or continuation of benefits (ranging from $100 to $3,200).
- Other compensation- or benefit-related costs (ranging from $100 to $200).

Indirect costs

- Costs associated with cleanup or salvage, equipment repair or replacement, and property or structural repair.
- Material or product losses (amounting to $100,000 for one organization).
- Material or product rework costs (amounting to $20,000 for one organization).

Administrative costs

- Management effort at time of incident/injury (ranging from $200 to $5,000).
- Management effort: cleanup, restoration, rescheduling, Ministry of Labour order compliance, replacement hiring and training ($1,000 for one organization).

- Follow-up with injured worker, including return to work, modified work, etc. ($500 for one organization).
- Administrative effort in claims management, medical and personnel effort, public relations, etc. ($500 for one organization).
- Lost opportunity costs: management's time following up on the incident (ranging from $100 to $5,000).

The survey results show a number of potential and real consequences of low literacy skills in the workplace.

Productivity-related costs

- Work interruption at time of incident (ranging from $1,000 to $200,000).
- Making up work through overtime, etc. ($4,000 for one organization).
- Rescheduling costs, such as new set-up, delays in equipment availability, idle staff, etc. ($1,000 for one organization).
- Costs associated with the learning curve of replacement workers.
- Equipment out of service for reasons such as Ministry of Labour stop work orders, time to repair damage or replace, etc.
- Loss of use of equipment, processes, or skills of injured worker.
- Cost of reduced productivity while worker on modified work schedule ($5,000 for one organization).

Ministry of Labour order-related costs

- Additional cost of complying with Ministry of Labour orders, such as equipment or process modifications, and administrative costs and procedures.
- Consultant fees.

Legal costs

- Legal counsel fees.
- Management and/or employee time for preparation, to act as witnesses, etc.
- Expert witness fees.
- Fines.
- Other costs, such as settlements, etc.

The results of this survey show a number of potential and real consequences of low literacy skills in the workplaces of the survey respondents. The risky situations and actual incidents reported by the survey respondents demonstrate the importance of literacy skills to workplace health and safety. Without even realizing it, some individuals with low literacy skills put themselves, their co-workers, and the public at risk. Others contributed to harmful accidents, incidents, and errors at work. The result in each case is a cost—whether in terms of financial losses, personal impacts, or both. Organizations wishing to avoid such costs can do so by assessing the need for literacy skills training in the workplace and taking measures to address any literacy skills gaps. Ideas for action on assessing literacy skills needs in the workplace and how to address literacy skills gaps are found in Chapter 5.

CHAPTER 4

Good Practices in Action

Chapter Summary

- Ten Canadian workplace literacy and learning programs were analyzed for positive impacts on workplace health and safety.
- Each organization's initiatives were also published as models of good practice in stand-alone case study reports.
- These case studies serve to increase Canada's public body of knowledge concerning the challenges, impacts, and outcomes of workplace literacy and learning programs.

A number of Canadian workplace literacy and learning programs were studied and analyzed for positive impacts on workplace health and safety, as part of this research study. Improved health and safety in the workplace due to a workplace literacy program was a key factor in selecting the organizations to be studied. Each organization's initiatives were published as models of good workplace literacy practice in stand-alone case study reports. These case study reports serve to increase Canada's public body of knowledge concerning the challenges, impacts, and outcomes of workplace literacy programs. Other organizations, governments, and their learning partners may learn and "borrow" from these lessons learned, as appropriate for their environment and circumstances.

The programs studied for case study purposes were drawn from two sources. First, potential case study organizations were sought from among the study's survey respondents. In addition, potential case study participants were found through submissions made by organizations in previous years to The Conference Board of Canada's Awards for Excellence in Workplace Literacy. A series of 10 organizational efforts to improve literacy and basic skills in the workplace were summarized and published as stand-alone case study reports. These are available for download at the Conference Board's e-Library web site.

Each case study report includes a discussion of one company or organization's workplace literacy program under the following topic headings: Overview; Objectives; Target Groups; Activities; Resources; Innovations; Challenges; Solutions; Outcomes; Impacts and Benefits; and Ability to Be Used as a Model. Within these areas of inquiry, the following questions were asked of each organization in order to gain a comprehensive understanding of the efforts made and gains received:

OVERVIEW

- What was the organization's situation—in terms of worker literacy and basic skills, as well as workplace health and safety—before the learning program was initiated?
- Who initiated the program?
- When was the program initiated?
- If the organization was unionized, was the union involved?

- How did concerns about workers' health and safety contribute to the launching of the program (e.g., high accident rates, workers unable to read safety manuals, etc.)?

OBJECTIVES

- What were the objectives for the learning program (in terms of improving workers' literacy and basic skills and workplace health and safety)?

TARGET GROUPS

- What groups of workers (and potentially non-workers) were targeted for the learning program?
- Were the learning participants' training records included in their human resources files?
- Were families of workers welcome to take part in the learning program?

ACTIVITIES

- What were the main components or phases of the learning program?
- Who delivered the training to workers (e.g., local college, English as a Second Language [ESL] instructors, etc.)?
- Who determined the program content and chose the training providers?
- What learning activities were used (e.g., classroom lectures, discussions, e-learning, etc.)?
- How were learning outcomes measured and evaluated?

RESOURCES

- What resources were used in creating and running the learning program?
- How was the program funded?
- What facilities were used to conduct the training activities?
- Did workers receive time off from their jobs to enable them to participate in training activities?
- Were any other organizations or partners involved in the learning initiative (e.g., local colleges, government, other companies, etc.)?

INNOVATIONS

- What were some of the most innovative features of the learning program?
- How does this learning program differ from other workplace education efforts?

CHALLENGES

- What were the challenges and barriers to launching the learning program?
- What were the continuing challenges to maintaining the learning program (e.g., acquiring executive or union support, convincing the workers to participate, lack of time, lack of money, etc.)?

SOLUTIONS

- How were the challenges and barriers overcome?
- What were the keys to the success of the learning program?

OUTCOMES

- What were the results of the learning program?
- What did the organizers and workers take away from the program?
- How did the program help improve the workplace health and safety situation?

IMPACTS AND BENEFITS

- What benefits did the organizations realize from their support of the learning program (e.g., fewer accidents and injuries, better understanding of safety manuals etc., improved bottom line, better management–employee relations, greater self-confidence among workers, etc.)?
- What benefits did the workers realize from participating in the learning program (e.g., improved self-confidence, better ability to recognize and deal with potential workplace hazards, improved labour market prospects)?

ABILITY TO BE USED AS A MODEL

- What other types of organizations or industries would benefit from the lessons learned in this case?
- How could another organization make use of the lessons learned in this case?

The case studies published as part of this study were selected purposefully to represent a variety of industry sectors and geographical locations. They also represent mixed sizes of organizations, with the number of workers serving as the measure of size. A "small business" is defined as one with fewer than 100 workers, while a "medium-sized business" has between 100 and 500 workers, and a "large business" has more than 500 workers. Highlights of the 10 individual case studies follow.

CASE STUDY 1
Injecting Quality Into Production Excellence at Abbott Point of Care

Medium-Sized Business: Ottawa, Ontario

Abbott Point of Care (APOC) develops, manufactures, and markets critical medical diagnostic and data management products for rapid blood analysis. In particular, Abbott Point of Care's two Ottawa-based facilities manufacture cartridges for the "i-STAT"—a revolutionary, hand-held analyzer that provides a comprehensive panel of reliable blood tests. Due to the medical nature of APOC's products, health and safety are high priorities in all aspects of its day-to-day activities. To develop a workforce that is adaptable, qualified, and proficient in this specialized industry, APOC requires workers to participate in an on-the-job, advanced manufacturing microelectronics apprenticeship training program. Support is provided for those employees who need to upgrade their literacy skills in order to complete this mandatory industry training.

CHALLENGES

- Worker participation in the Apprenticeship Program in Microelectronics was mandated. However, the original program's curriculum was outdated and did not meet company needs.
- The diverse cultures and educational background of workers results in some needing help with improving their literacy and basic skills. Others need language training in order to fully meet the requirements of the apprenticeship program. However, the stigma attached to "literacy" and high school-level training results in some reluctance on the part of employees to take advantage of these offerings.
- Production scheduling is impacted by these training initiatives, since employees take part while on shift.

SOLUTIONS

- The company redefined the apprenticeship program's learning objectives, rewrote the course outlines, and developed all teaching content. APOC worked closely with the provincial government and Algonquin College to ensure academic integrity and alignment with provincial standards.
- Individuals are encouraged to explore these available supplementary training options in a non-threatening way. Positive messages about the training—passed by word-of-mouth from employees who had already participated—also helped to bring individuals forward to ask for help.
- The benefits of the training initiatives were marketed to managers and supervisors. The goal was to ensure their support for the program, despite the disruption related to workers attending training during their regularly scheduled shifts.

The case studies represent a variety of industry sectors, geographical locations, and sizes of organizations.

HEALTH AND SAFETY IMPACTS

- Workers gained a thorough understanding of the product process and the need for meticulous quality and safety standards, procedures, and processes.
- Increased efficiencies in workplace operations were realized through a better understanding of the content and meaning of health and safety practices.

CASE STUDY 2
Dishing Up Quality at Atlantic Health Sciences Corporation

Medium-Sized Business: Saint John, New Brunswick

The Atlantic Health Sciences Corporation (AHSC) comprises 12 hospitals and health centres in the southwestern part of New Brunswick. The Department of Nutrition and Food Services at AHSC operates seven cafeterias in six facilities, which serve over 3,000 customers daily. Following a major change in food preparation processes, the corresponding worker orientation, skills training, and performance expectations around the new system needed to be developed. To address customer satisfaction and

food-handling safety issues, competency-based training (incorporating both knowledge and on-the-job training) and clearly identified performance expectations were put into place.

CHALLENGES

- Customers and patients need to be confident that their safety has not been compromised through improper food handling. A mistake in food handling could be devastating to individuals with health issues, such as weakened immune systems or a need for dietary restrictions.
- An absence of clear performance management measures over the years led some longer-term staff members to fall into the habit of performing poorly on critical work tasks. It was difficult to convince them that they needed retraining despite their years of experience. Grievances were threatened from the "re-introduction" of staff to performance measures in the new performance management system.

Atlantic Health Sciences Corporation needed to develop a new system because of a major change in food preparation processes.

SOLUTIONS

- A performance management system that uses competency-based training, and clearly identified performance expectations, links AHSC's values and strategic directions to the performance expectations. Food-safety issues are addressed through training, and accountability through documentation.
- Staff are educated on the critical importance of food safety, including the constant monitoring of food temperatures. All workers—regardless of their time with the organization or in their current job—are given training in food-temperature monitoring procedures.

HEALTH AND SAFETY IMPACTS

- The establishment of clear measures of work performance, including safety risks, allow workers to see the results of their training and its application to their jobs and to customers' safety.
- Improved documentation on the job has resulted, according to the indicators set, in enhanced job performance and, consequently, improved food safety.

CASE STUDY 3
Safe Landings: Adult Basic Education at Bristol Aerospace

Large Business: Winnipeg, Manitoba

Bristol Aerospace Limited, a subsidiary of Magellan Aerospace Corporation, is a specialist manufacturer in the aviation and aerospace industries. The company's success in the global marketplace is built on responsive customer service and value-added manufacturing. In the 1990s, Bristol Aerospace embarked on a workforce skills upgrading program in response to a business need to expand into new markets. New quality management systems, such as WHMIS and ISO 9000, required documentation certifying that workers had sufficient knowledge and skills for their respective trades. Implementation of a statutory WHMIS training program revealed a need to improve the functional literacy and numeracy skills of Bristol workers.

Bristol Aerospace embarked on a skills upgrading program in response to a need to expand into new markets.

CHALLENGES

- Finding an educational partner willing to assist with the development of flexible assessment strategies and to be amenable to flexible training delivery was an initial challenge. Not all educational institutions or national accreditation bodies that were approached by Bristol were willing to participate in a venture of this nature, as it deviated from their normal operations.
- The resources needed to deliver Prior Learning Assessment and Recognition (PLAR)—for instance, a modular curriculum—were significant. Internal funding sources were not sufficient to support the required infrastructure.

- Generating enough worker interest to justify the delivery of specialized technical training was an ongoing challenge.

SOLUTIONS

- Bristol partnered with Red River Community College to facilitate the development of flexible assessment strategy. Training was based on adult-learning principles and practices as well as the recognition of prior learning.
- Management was forced to seek external sources of financial support for the development of the required infrastructure. Additional funding from governments and other partners was also obtained in order to continue to apply PLAR to existing technical programs.
- All stakeholders—but especially the learners themselves—were involved in the decisions made around training design and delivery. Training programs were made relevant through customization to individuals' specific learning needs. Participants' receptivity to change was managed through a modular curriculum delivery that incorporated learning outcomes in its design. The training program was viewed as a perpetual "work in progress" so that the changing needs of learners could be continually addressed over time.

HEALTH AND SAFETY IMPACTS

- The upskilled workforce was better able to meet the requirements of WHMIS health and safety requirements.
- The training program resulted in a safer workplace.

CASE STUDY 4
Priority Communications Within the City of Vancouver

Large Business: Vancouver, British Columbia

The City of Vancouver's 8,000-plus workers represent very diverse backgrounds, with one in five municipal workers speaking English as a second language. Several on-the-job incidents in the late 1980s revealed that many City of Vancouver ("City") workers had difficulty understanding and communicating effectively in English. For example, workplace safety exams were not being passed, some employees could not pass standardized testing necessary for them to gain promotion, and others were being alienated due to their inability to communicate in English with co-workers. The City decided to upgrade employees' literacy, language, and communication skills. The City's Workplace Language Program gave employees "the opportunity to achieve individual objectives in a variety of areas, including General Educational Development (GED), airbrake, Workplace Hazardous Materials Information System, and other formal training certificates or diplomas."[1]

In the late 1980s, several work-related incidents revealed that many Vancouver workers had difficulty with English.

CHALLENGES

- The training model required above-average cooperation in the workplace. While the program's arrangement showed commitment from employees, the employer, and the union, obtaining mutual union and management cooperation was an ongoing challenge.
- Because the program was not curriculum- or computer-based, it was not always an easy sell to potential program funders, who were more comfortable with traditional training models that have clear, concrete expectations (such as pass/fail ratios).
- Some managers needed convincing that training without an immediate "bottom line" benefit to their departments was worthwhile. However, their support was crucial so that employees could be comfortable asking for time away from their jobs to participate in training.

SOLUTIONS

- The City provided language training on a shared-time basis with employees to show equal commitment to communications skills improvement.
- Keeping enrolment dates flexible and offering training in a variety of locations helped make it more convenient for participants to attend classes.
- Classes were purposefully kept small (between 3 and 10 employees) to reduce participants' potential anxiety about returning to the classroom as an adult.

1 City of Vancouver, "Workplace Language Program."

HEALTH AND SAFETY IMPACTS

- Improved adherence to WHMIS and other safety regulations was achieved.
- Supervisors reported that workers who completed the program were able to communicate more effectively on the job.

CASE STUDY 5
A Multi-Faceted Approach to Literacy Skills Development at De Beers Canada

Large Business: Yellowknife, Northwest Territories

De Beers has been involved in the diamond business since 1888 and is recognized internationally as an industry leader. De Beers operates two mines in Canada. De Beers has entered into voluntary Impact Benefit Agreements with a number of Aboriginal communities. These agreements establish hiring priorities, training commitments, business opportunities, and collaboration around promotion and preservation of culture in communities.

Health and safety is tied into everything at De Beers because its success is dependent on a safe operation. To maintain a stable, committed workforce, De Beers has committed itself to making its employees aware and capable of meeting safe operating standards. Recognizing the need to address literacy and basic skills within De Beers' potential workforce, management decided on a multi-faceted approach that addresses literacy skills on-site and in local communities.

CHALLENGES

- The constant flux of shift work created difficulties in establishing efficient training schedules. In addition, it was not easy to motivate individuals to participate in learning activities immediately after they had finished working a 12-hour shift in the mine.
- A major challenge of working with a Northern population is that English is not a first language for many of the local residents. In a potentially dangerous environment such as a mine, it is vital that workers be able to follow verbal or written instructions in case of an emergency; can read and understand safety manuals, posters, and pamphlets; and can communicate easily and quickly with their co-workers.
- Literacy is a taboo issue for many, and thus was not always an easy subject to broach with employees. Most individuals with low literacy and basic skills are reluctant to self-identify for fear of losing their job or because of the stigma attached to low literacy.

SOLUTIONS

- De Beers offers a work-release program to its employees, which allows for equal paid time off for any personal time that is contributed to learning. Internal communications efforts, such as monthly newsletters, keep employees informed of training scheduling and opportunities.
- To help those employees whose first language is not English, the company employs Aboriginal staff members who provide interpretation services when language difficulties arise. Employees are given special help in learning English, and particularly in learning to master the health and safety training modules.
- To assist employees who are reluctant to return to a "classroom" training setting, one-on-one instruction is provided. All training is customized to meet individuals' literacy and basic skills needs. Supervisors collaborate with the trainers to identify areas of need.

Health and safety is tied into everything at De Beers because its success is dependent on a safe operation.

HEALTH AND SAFETY IMPACTS

- By providing literacy and language-skills training prior to employment, the potential for safety incidents at work has been greatly reduced.
- The company's strong emphasis on health and safety at work has permeated local society. Health and safety efforts have moved into local communities, and that has made a difference in residents' personal lives.
- De Beers is working with other companies in the area to develop a "Health and Safety Passport" that would be valid for workers who moved to jobs in other companies, whether in mining or in other industry sectors that require core health and safety training.

CASE STUDY 6
Building Skills for a Safe Workplace: Competency Management at Keyera Energy

Large Business: Calgary, Alberta

As one of Canada's largest natural gas midstream companies, Keyera Energy provides services and products to oil and gas producers in Western Canada, and markets related products throughout North America. The sour gas processed by the company is toxic and corrosive, which presents unique technical challenges and a risk to personal safety and the environment. To provide a safe and healthy work environment, Keyera undertook to develop the Competency Management and Development System (CMDS), which ensures that workers understand their job requirements and maintain a continuous and credible record of achieved skills. While the focus of the CMDS is industrial training, it also addresses essential skills—such as reading and writing, computer literacy, interpersonal relations, and teamwork capabilities.

To provide a safe and healthy work environment, Keyera undertook to develop the Competency Management and Development System.

CHALLENGES

- Technical management of the multi-layered, complex competency management system remains an ongoing challenge. Furthermore, increasing numbers of online users, and continuous progress in communications technology, have revealed the limited capacity of the database's original software.
- Younger and newer workers—who are now replacing the older cohort—come to the industry with more formal education and better-developed essential skills, but often lack practical work experience. This requires flexible training opportunities to suit the skills development needs of a mixed-generation workforce.

SOLUTIONS

- A planned major move to a new software platform will address the growing complexity of the system and the increasing number of users.
- The new interactive e-learning resources will expand the training capacity of the system and enable new workers to learn the practical skills they may be lacking. Keyera is also continuing its commitment to the use of workplace mentorship as a way for new employees to upgrade their knowledge of the plant-floor operations and their technical skills.

HEALTH AND SAFETY IMPACTS

- Safe work practices are viewed as a top priority by all employees.
- Employees feel there is a corporate commitment to their safety and well-being.
- Several CMDS user companies have gone a full year without a workplace incident.

CASE STUDY 7
Hatching a Plan for Safety: Literacy Skills Development at Lilydale Inc.

Large Business: Edmonton, Alberta

Established in 1940, Lilydale Inc. is one of Canada's largest poultry processors and employs over 2,300 workers across Canada. Lilydale operates six manufacturing facilities and three hatcheries in three provinces: British Columbia, Alberta, and Saskatchewan. The company is committed to providing Canadians with safe, wholesome, premium-quality products, and it is always looking for new methods and technologies to further enhance food safety. To that end, Lilydale enforces strict food-safety handling processes and product specifications at every stage of production. The company believes that the best way to ensure safe food production is to maintain high standards when it comes to raw materials, the process, the environment, and the skills of the people involved. Management took the initiative to create in-depth orientation and ESL training programs to overcome turnover and health and safety issues. Training was not only limited to food preparation and food safety at work, but encouraged individuals to see the importance of exercising the same health and safety standards at home as well.

CHALLENGES

- A high turnover rate was compromising the efficiency of Lilydale's production output and creating a sense of urgency to update employee training programs. However, in-house resources for assessing skills needs and redesigning the company's orientation training efforts were constrained.
- Initially, internal production departments were relied upon to provide expertise, input, and feedback on the content of the training manuals in a timely fashion. However, the literacy level of the information provided was often far too high to be used in training content for individuals with low-level literacy or limited English-language skills.
- Employees were quickly engaged and enthusiastically enrolled in the ESL program. At first, the high participation rate was viewed as a great success given the diversity of the workforce: English was a second, or even third, language for most workers. However, the high number of employees attending language training classes soon led to staff shortages on the production lines.

Lilydale enforces strict food-safety handling processes and product specifications at every stage of production.

SOLUTIONS

- Recognizing their previous corporate shortcomings of providing inadequate training for new employees and outdated, visually unappealing, training manuals, Lilydale revamped its orientation program to make new employees feel welcomed and valued. Training was presented to new employees by experienced adult educators. Manuals and standardized work instructions were clearly presented and incorporated the use of real photos and footage of actual job tasks.
- In addition, training manuals were presented at a literacy level that any employee—regardless of their skill or language level—could understand. It was determined that Grade 5 was the base level at which all employees could comfortably read and understand the language of training materials. The HR team adjusted the information given by the internal experts and re-presented the content and training manuals at a Grade 5 level.
- In a manufacturing/food processing company, production output is always a high priority. Therefore, to avoid compromising the integrity of the ESL program, HR worked closely with plant managers and supervisors on scheduling to ensure proper representation on the production lines during employee training periods.

HEALTH AND SAFETY IMPACTS

- Routine workplace operations improved (e.g., workers are better able to understand the content and meaning of safety documents and work manuals, fill out accident forms, and carry out other workplace tasks).
- Employees are better prepared to meet food preparation standards and regulations—a factor that contributes positively to public health and safety.
- Supervisors observed reduced infractions of health and safety standards, and tracked improved manufacturing processes.
- Employees' safety on the job was improved through increased self-confidence and ability to follow procedural directions on the shop floor.

CASE STUDY 8
A Clear View of Safety at Loewen Windows

Large Business: Steinbach, Manitoba

Loewen Windows began as a family-owned sawmill in 1905. Over the years, it has grown into one of Canada's largest manufacturers of premium-wood windows and doors, employing nearly 1,700 people at its Steinbach, Manitoba, location. In keeping with its strategic plan, Loewen broadened its commitment to develop the skills of its workforce and those of the local community. The company's Foundation Skills Program incorporates opportunities for workers to upgrade their "English as an additional language" skills and their literacy skills. A General Educational Development (GED) program was added for workers who were interested in pursuing higher education.

CHALLENGES

- The company's diverse workforce had varying levels of English-language skills. Employees took longer than necessary to complete work tasks, due to communication issues. Cultural differences

among employees compounded the communication difficulties, which created internal misunderstandings and conflict.

- Work instructions and company safety training were geared toward a native English-speaking audience. It was therefore difficult to explain safety policies and procedures to employees with low-level English language skills. It was also challenging for managers to gauge the level of employees' comprehension of safety procedures.

Loewen Windows broadened its commitment to develop the skills of its workforce and those of the local community.

SOLUTIONS

- The company fostered a culture in which diversity and multiculturalism were valued. To that end, Loewen provides all workers with the tools, education, and development opportunities needed to succeed. Loewen outlines its values and expectations to all new personnel to ensure that a safe and respectful environment is maintained.
- An employee development team has responsibility for assisting workers in developing the skills needed for effective performance. Communications and literacy skills upgrading opportunities are offered to promote workplace health and safety. Mastering these foundation skills allows workers to participate in more advanced, industry-related courses, such as the Workplace Hazardous Materials Information System Refresher, as well as first aid and a variety of machine-operator courses.
- Supported by a health and safety department and various health and safety advisory groups, Loewen provides many avenues for team members to contribute ideas and participate in safety-focused committees. Workers are encouraged to share safety tips, to create "crew talks" (weekly safety memos), and to submit to the "Ideas Program" their thoughts on ways to improve health and safety at Loewen. Enhanced literacy and communications skills complement the safety initiatives at Loewen Windows by giving workers the confidence to participate in the safety programs.

HEALTH AND SAFETY IMPACTS

- Literacy skills development enhances workers' technical ability to complete basic and advanced training programs relating to safety and production.
- Workers and managers have a heightened sense of responsibility for workplace safety through the establishment of accountability and reporting systems.
- Literacy and communication skills development efforts give workers the confidence to take part in safety training.

CASE STUDY 9
Forming the Foundation of Safety: Omega 2000 Cribbing Inc.

Small Business: Calgary, Alberta

Omega 2000 Cribbing builds foundations for single- and multi-family homes and is a leader in the local construction industry in Calgary, Alberta. Established in 1986 as a small firm employing just three workers, it has grown into a company that today employs nearly forty full-time workers during peak periods. Cribbing is a vital step in the construction of new homes. Once site excavation is completed for a new home, "cribbers" assemble wooden forms and pour concrete into them to create the home's foundation. This work literally provides a solid base for other tradespersons to build upon as the new home is raised. Sturdy craftsmanship is therefore vital to the success of any cribbing company. Basic skills training is crucial in the cribbing industry, as all workers must be able to read, understand, and act upon, standardized health and safety procedures. Management determined that training was needed to reduce skills gaps and improve health and safety practices. The goal of the company's basic skills program was to enable all workers to meet the minimum health and safety standards in every aspect of their work.

CHALLENGES

- In a small business such as Omega 2000, the number of employees studying to improve their literacy and basic skills at any one time is usually very low. Since construction worksites for this company are located in residential areas and are temporary, it is not practical

to maintain an on-site facility to accommodate training. Likewise, hiring a teacher to provide on-site instruction would be impractical.
- The company does not receive funding from government or other sources to offset the costs of training.
- As a small organization, Omega 2000 assumes some risk for staff shortages that occur when workers are off-site during working hours to study and attend examinations.

Omega 2000 management determined that training was needed to reduce skills gaps and improve health and safety procedures.

SOLUTIONS

- The company helps individual workers choose an educational path and setting that suits their needs. This may involve attending classes in a local adult education centre, studying online, or a combination of the two. Through a well-established relationship with the Calgary public school board, flexible solutions are found to address each worker's needs on a case-by-case basis.
- Over the last 10 years, Omega 2000 has consistently made the strategic decision to invest in worker training—to the tune of approximately $100,000 in various workplace education initiatives. This has allowed employees to upgrade their skills in areas such as health and safety, pre-apprenticeship training courses, high school equivalency, and basic skills.
- Management makes a point of accommodating individual workers as they try to better themselves. Staff shortages caused by worker absenteeism as they take part in training are accepted by management and considered a necessary part of doing business.

HEALTH AND SAFETY IMPACTS

- Upgrading the skills of workers benefits the company through a healthier and safer workplace.
- Management has seen a clear link between an increase in literacy and basic skills and a decrease in accidents on the job. Accidents have fallen significantly since literacy and basic skills training have been offered.
- Health and safety regulations and practices are being followed with greater precision and consistency.
- Worker satisfaction has increased in line with management's commitment to skills development and workplace health and safety.

CASE STUDY 10
Learning for Safety: English-Language Training at Robinson Paperboard Packaging

Small Business: Mississauga, Ontario

Robinson Paperboard Packaging, located in Mississauga, Ontario, is a division of Robinson Packaging PLC, a leading provider of innovative packaging solutions with headquarters in Chesterfield, United Kingdom. The company has been operating since 1986 and was purchased by Robinson Group in 1999. It produces a wide range of paperboard tubes, cans, and boxes used in the cosmetics, confectionary, personal care, wine and spirits, and other industries. Its production facility currently employs 35 people. Cultural diversity is a distinct feature of Robinson Packaging's workforce: over 90 per cent of the employees are recent immigrants from South Asia and Eastern Europe. High accident rates and poor hazard awareness at the plant led to an English-language skills program. The program played an essential role in transforming the workplace environment and improving the safety record at the company's plant.

At Robinson Paperboard Packaging, high accident rates and poor hazard awareness led to an English-language skills program.

CHALLENGES

- Some employees were reluctant to acknowledge their lack of English skills and take part in the training. The program also had a relatively high drop-out rate—approximately 30 per cent of the students withdrew from the course at different stages. Most of those who left the program early attributed their decision to the difficulty in adjusting their schedules to accommodate the time spent on learning and homework.

- The greatest challenge to the program was the lack of funding. As a small business, Robinson Packaging had limited financial resources to devote to language training—for example, it could not afford to provide each individual student with an ESL textbook. Attempts to secure financial assistance from external agencies were not successful—in part because the company did not have the time or personnel to engage in what it found to be drawn-out and overly complex application processes.

The case study companies share a common understanding that literacy skills development efforts are worthwhile.

SOLUTIONS

- Internal interest in the program was increased by engaging employees in its design and planning. An employee council was formed to represent employee interests and to provide input into the design and management of the training program. Participants' efforts to improve their skills were recognized by management through class-attendance rewards of gift certificates and small souvenirs.
- Having to rely solely on its own financial resources, Robinson Packaging created a corporate training fund to finance its ESL program. Cost savings came through holding classes on-site in the company's cafeteria and through employee sharing of some training materials. The company was able to recoup some of the training costs through Ontario Workplace Safety and Insurance Board rebates earned by achieving a higher level of safe operation.

HEALTH AND SAFETY IMPACTS

- The program played an essential role in increasing employees' ability to understand the content and meaning of safety documents, fill out accident forms, and perform other routine workplace operations.
- Accident rates were significantly reduced (the company went nearly a year without a single accident and became eligible to receive rebates on its Ontario Workplace Safety and Insurance Board premiums).
- A better understanding of general and industry-specific safety procedures led to decrease in accidents. As a result, there was less equipment downtime.
- Productivity rose, thanks to fewer accident-related work stoppages.

Though they represent a variety of industries, geographic locations, and sizes of organizations, the companies involved in the case studies summarized here share a common understanding that literacy skills development efforts are worthwhile and beneficial. Each company has realized health and safety benefits from their workplace literacy initiatives. Some have explicitly tracked the learning investments and cost savings of the health and safety benefits, while others have relied on reports of observation, employee morale, and customer service. The end result is the same—management in each case is satisfied that its investments in workplace literacy result in fewer health and safety risks and incidents in the workplace. This is good business and good news for all—employers, employees, and customers alike.

Detailed reports of these case studies are available to e-Library subscribers at www.conferenceboard.ca/e-library/default.aspx.

CHAPTER 5

Recommendations and Conclusions

Chapter Summary

- There are a number of potential actions organizations can take to improve literacy skills in the workplace and thereby reduce health and safety risks.
- Multimedia formats within literacy and language training curricula can be powerful tools to ensure that health and safety messages are understood in the workplace.
- The results of this research show that workplaces have the ability to mitigate health and safety risks by addressing workers' literacy skills.

Low literacy skills can exist in any organization. In organizations that rely on high standards and strict regulations for health and safety, low literacy skills carry a considerable risk. When lower literacy skills put workers or the public at a health or safety risk, organizations can take action to improve those skills and thereby lessen the potential risks. Considering workplace policies and procedures through a literacy lens is a starting point. There are a number of other actions that organizations may take to address lower literacy skills in the workplace—and thereby also address potential health and safety threats.

ORGANIZATIONAL ACTION PLAN

1. REVIEW PAST INCIDENTS

Before investing time and effort into making plans, consider past health and safety incidents carefully. Is it possible that low literacy could have been a contributing factor? Review the events that led to the incident and how the incident was handled. Were new prevention measures put into place or old ones revisited? If so, were these measures fully understood by all staff involved in that area of work? How would the measures stand up in the light of a literacy lens?

There are a number of actions that organizations may take to address lower literacy skills in the workplace.

2. REVIEW ORGANIZATIONAL HEALTH AND SAFETY POLICIES AND PRACTICES

Your organization likely has formal workplace health and safety policies already in place. Formal procedures typically follow so that workers know how those policies play out for them in their jobs. Informal practices may also be a part of your workplace's operations. Take time to review your organization's policies—especially all written procedures and practices. Ensure that all departments or work areas are consulted; other areas—such as human resources, operations, or facilities—may each have their own workplace procedures and practices for dealing with health and safety incidents or situations.

3. EXAMINE THESE POLICIES AND PROCEDURES IN THE CONTEXT OF A USER WITH LOW LITERACY LEVELS

Once you have a good handle on all the health and safety procedure and practice documents that workers are required to read and understand, you will be able to spot any literacy skills gaps that could affect workers' abilities to follow prescribed actions. Review the documents carefully, noting the language used and the degree of literacy or basic skills required to read and understand them. If in doubt, invite an adult educator—skilled in teaching literacy and basic skills—to review the documents and give you his/her expert opinion of the skills needed to comprehend the documents. Note any documents that are deemed too complex or difficult to be read and understood by a user with lower literacy or basic skills.

If an organization has the means, it is important to put systems in place to measure and track improvements in workplace health and safety.

4. BRAINSTORM SOLUTIONS

If you conclude that low literacy skills will not allow a user to understand your organization's health and safety documents, it is time to consider your options. A team approach to brainstorming will help you identify creative and useful suggestions. Involve your workers, union representative, supervisors, trainers, and any other individuals you feel may be able to put ideas on the table. Here are some solutions that your team might consider adopting:

- Conduct a literacy-needs assessment of the jobs in your workplace, remembering to include any procedures that workers would be expected to follow in the event of a health or safety emergency.
- Revise or rewrite your organization's health and safety policies and practices to suit a reader with lower literacy or basic skills.
- Offer literacy skills upgrading opportunities to workers in a non-threatening way, using adult learning principles. See *Profiting From Literacy*[1] for advice on creating or refining a workplace literacy program.
- Give careful consideration to the skills development needs of at-risk populations, such as workers whose first language is not the language used at work.
- Redesign jobs to make use of literacy skills so that workers do not lose the skills they have learned.
- Find other ideas in existing models and in case studies of good practice in workplace literacy skills development. Customize these to your workplace.

5. MEASURE AND TRACK HEALTH AND SAFETY INCIDENTS AND IMPROVEMENTS

If your organization has the means, put systems into place to measure and track improvements in workplace health and safety. Look back to the health and safety incidents of the past and to the health and safety objectives that were created as a result. Measures that relate back to these objectives will allow you to judge whether the initiatives taken were successful.

Improving workplace health and safety is a win-win-win scenario for workers, organizations, and the public.

Possible measures might include tracking the frequency of health and safety incidents or near misses, noting how often or how well health and safety forms are completed, and observing how accurately health and safety procedures and practices are followed. Keeping track of any workplace compensation premium rebates, or reductions in claims or fines, also provides evidence to support the initiative taken. Having some record of the impact of developing literacy skills and improving communications on workplace health and safety will help illustrate the benefits of such initiatives. The evidence will also help to justify the workplace literacy training budget down the road.

6. RECOGNIZE OUTCOMES AND IMPACTS

Improving workplace health and safety is a win-win-win scenario. Workers benefit when their improved literacy skills lead to lower personal risk. Organizations benefit through the improved level of self-confidence and teamwork in the workplace that typically results from workplace literacy development efforts. In addition, reducing

1 Campbell, *Profiting From Literacy*.

the number of health and safety incidents will result in fewer injuries among the workforce, less property damage, and lower workplace compensation premiums and fines. The public also benefits from safer products and services that minimize risks to their health and safety. While societal benefits cannot be directly compared with the economic benefits of improved workplace health and safety, both are worthy of recognition and attention.

7. REWARD EFFORTS TO IMPROVE LITERACY SKILLS

As part of an incentive strategy, efforts to improve literacy skills should be recognized and rewarded. There is no quick fix for improving literacy skills—significant effort over time is required to make real improvement. Workers (as learners) and organizations (as facilitators of learning) both deserve credit for taking the initiative to improve workplace health and safety through literacy skills development. Organizations can show their commitment to learning by recognizing and rewarding learning program participation and achievements. By recognizing organizations that provide learning programs to their workers, governments and other bodies can encourage other organizations to learn from these successes.

Safe workplaces are those in which workers are able to communicate effectively and clearly with one another, with supervisors, and with customers.

ALTERNATIVE MODELS TO WRITTEN HEALTH AND SAFETY PROCEDURES

While many organizations turn to written manuals to detail their workplace health and safety policies and procedures, these are of limited use to individuals with low-level literacy skills. As an alternative, organizations can consider conveying information in different formats to accommodate various reading and comprehension levels. Multimedia formats that make use of visual, auditory, and/or sensory-based messaging can be powerful tools to ensure that health and safety messages are understood in the workplace. Visual depictions, for example, are one way to leverage universally understood images for work-related purposes. (See box "Alberta Food Processors Association—Global Talent Untapped" for an example of how one organization is promoting the use of pictorial work-related documents.) Converting written manuals to electronic formats, such as CD-ROMs or online content, could allow organizations to reach workers who have some computer experience.

Alberta Food Processors Association—Global Talent Untapped

The Alberta Food Processors Association (AFPA) has produced a series of tools and resources for employers who recruit, hire, train, and sustain a "global" workforce. It has produced lesson plans for teaching workplace English, a *Clear Language Guide*, English as a Second Language Resource Inventory, and other documents. AFPA makes these documents available to external organizations for a fee. As part of this package of resources, AFPA has created a *Photo Dictionary for Food Processing Facilities*, as well as an associated *Facilitator's Guide*. The dictionary uses high-resolution colour photographs taken in food-processing plants. They show various work areas, tools, equipment, containers, etc. A pronunciation guide and phonetic transcription of each term provides additional assistance to users. The guide provides a number of ideas for ESL teaching strategies and lesson plans.

Source: Alberta Food Processors Association.

CONCLUSIONS

Safe workplaces are those in which workers are able to communicate effectively and clearly with one another, with supervisors, and with customers. If their literacy or language skills are lacking, their ability to communicate will be compromised. Workplace health and safety may be compromised accordingly. In order for written health and safety policies and procedures to be understood and followed, workers need to be able to read and comprehend them. Workers with low literacy or language skills who are assisted in raising those skills are better able to act and react to workplace situations in accordance with approved health and safety measures. They are also better equipped to understand their own right to refuse potentially unsafe work. As a result, businesses operate more safely, and workers, customers, and the general public are kept safe.

Safe workplaces are more efficient and cost-effective than are unsafe ones. Safe workplaces operate more smoothly and have less potential for risk and incidents. Health and safety incidents are inconvenient at best; at their worst, they are devastating in terms of costs, reputation, and human life. The results of this research demonstrate the serious consequences of unsafe workplaces. The workman's compensation data, the survey results, and the experiences of the case study organizations provide evidence as to the real costs of health and safety incidents. The data also point to the compelling case for providing opportunities to improve workplace health and safety through literacy skills development.

This research shows that businesses realize health and safety benefits from improving the literacy and/or language skills of their workforces, and that workplaces have the ability to mitigate health and safety risks by addressing workers' literacy skills. Once a literacy skills assessment is completed and it is found that literacy skills improvements are called for, organizations have many options regarding learning partners. Ideas for action on how to improve literacy skills in the workplace are found in this report and many other sources. Organizations that take action and follow through will realize benefits in the form of lower costs and increased efficiencies—the direct benefits of a healthier and safer workplace.

APPENDIX A

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