

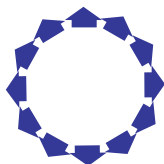
# Preparing for the Future:

## Identifying Advanced Essential Skills Needs in Canada



Report of the Advanced Essential Skills Project  
Steering Committee

May 2003



The Canadian Association for  
University Continuing Education



Association of  
Canadian  
Community  
Colleges

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- Association of Canadian Community Colleges (ACCC)
- Canadian Association for University Continuing Education (CAUCE)

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**In particular, the steering committee wishes to acknowledge the work of Fred Evers, Betty Power and Janet Mitchell of the Centre for Educational Research and Assessment (CERA) at the University of Guelph who conducted the research and wrote this report.**

## DISCLAIMER

While this project was initiated under the administrative umbrella of the Canadian Alliance of Education and Training Organizations, its reports and outcomes do not necessarily represent the views of all CAETO members.

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*CAETO/ACOEf is an incorporated, not-for-profit umbrella association of national education and training organizations. It provides its members with opportunities and administrative support to identify, develop and implement partnerships among themselves – and with other business/industry, labour, government and community organizations – on issues and projects of mutual concern and interest. A full list of CAETO members as well as information about its activities can be found at [www.caeto.ca](http://www.caeto.ca)*

# Table of Contents

<b>Foreword</b> .....	<b>i</b>
<b>Executive Summary</b> .....	<b>iii</b>
<b>Introduction</b> .....	<b>1</b>
<b>Research Design</b> .....	<b>3</b>
Roundtables.....	4
Roundtable Anomalies .....	4
Roundtable Questions.....	4
Interviews .....	4
Data Analysis.....	4
<b>Literature Review</b> .....	<b>7</b>
The Changing Workplace .....	7
Competency-Based Education and Lifelong Learning.....	8
Skills, Competencies and Capabilities – Lexicon of Key Terms.....	8
Models of Skill Development.....	9
The Bases of Competence .....	10
HRDC’s Essential Skills .....	11
Values .....	11
<b>Findings and Discussion</b> .....	<b>13</b>
Question 1 .....	13
Question 2 .....	13
Question 3 .....	14
Question 4 .....	18
Question 5 .....	20
<b>Conclusions and Recommendations</b> .....	<b>23</b>
Recommendations.....	24
<b>References</b> .....	<b>25</b>

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## Foreword

This report documents a project that identifies the advanced essential skills needed by Canadians to meet the increasingly complex workplace demands that they face today and will face in the future.

The project represents a shared vision and a labour of love for those people who have worked to complete it, and embodies an enormous opportunity for those who will take advantage of its findings. The concept for the project was jointly developed by the Association of Canadian Community Colleges\* (ACCC) and the Canadian Association for University Continuing Education (CAUCE). Both associations are members of the Canadian Alliance of Education and Training Organizations (CAETO), which has facilitated this project. ACCC and CAUCE envisioned this as a way to address the question of what curriculum development and planning will be needed to ensure that education and training providers can supply Canadian workers with the skills they will require.

There is a clear and well-documented link between effective education/training and sustainable economic development. Both ACCC and CAUCE understand this link and that life-long learning supplements basic, or entry-level, education and skills with the upgrading and enhancement opportunities needed to remain current and to stay competitive. They also understand that their institutions, as providers of life-long learning, are hard-pressed to

understand their clients' needs, develop appropriate curricula and ensure flexible, effective program delivery for today's rapidly changing workplace.

This project will assist Canadian life-long learning providers with the critical tool of market research for the relevant data they will need to develop new programs and upgrade current programs to meet the needs of their advanced training clients in the years to come.

We wish to thank Human Resources Development Canada (HRDC) for their belief that this initiative is a critical one and for their funding and moral support.

Lastly, we acknowledge the outstanding research done by the team of Fred Evers, Betty Power and Janet Mitchell of the Centre for Educational Research and Assessment (CERA) at the University of Guelph. The volume of data they collected from all sources and their enthusiasm in analysing it, particularly in light of the reduced timeframe imposed, were both heroic and inspired.

**Advanced Essential Skills Project Steering Committee:**

Mr. Paul Brennan, ACCC (co-chair)

Mr. Dale Schenk, CAUCE (co-chair)

\* In the report, "college" refers to community colleges, technical institutes, CEGEPs (Quebec's general and vocational colleges) and university colleges.



## Executive Summary

This report validates the view that there is a universal need in the Canadian workforce to develop leaders and successors for the sustainability of our economy. The research undertaken involved the analysis of the skills required by advanced level workers. A companion document provides a review of current literature related to skill development.

The advanced essential skills identified within the research fall into four major categories: leadership, creativity, project management and communication/interpersonal skills. The report proposes a Pyramid of Advanced Essential Skills made up of these four plus more specific skills within each grouping (illustrated below, Table 4 in the text).

The model is consistent with other research on skills. The report examines the contemporary literature on skills, competencies and capabilities, comparing models by Bloom (1956); Chickering and Reisser (1993); Evers, Rush and Berdrow (1998) and Baxter-Magolda (1992). Similarities among the learning and development models are discussed. The models help to situate the nine Essential Skills identified by Human Resources Development Canada (HRDC) and the advanced essential skills pyramid developed in this research. The pyramid is viewed as a continuation of HRDC's nine essential skills. Knowledge and workplace values are also fundamental to our understanding of the needs of Canada's workforce.

The report defines key terms in order to establish a lexicon for this and future work. The lexicon focuses on definitions of "skill," "competency-based education and training" and "life-long learning." The nine essential skills and the four advanced essential skills within the pyramid can also be added to the lexicon.

The research for this project took place from October 2002 to March 2003. Data were collected from all regions in Canada at four roundtables in four major centres, supplemented with individual interviews. Participants were selected from as many representative sectors as possible. The research collected qualitative data based on five key questions. The information was systematically analyzed and synthesized to produce the findings. Cases and stories are included to provide context for the reader.

Participants reported that training for the technical skills can be supported within their organization but advanced higher level skills such as those commonly referred to as "soft" skills must be supplied by higher education and continuing education working in collaboration. In order to be more relevant, industry urged that the modes of delivery be participatory and case-based or problem-based with scenarios written in tandem with educators and industry personnel collaborating together. Succession planning is a major hurdle for all companies in all regions visited during this research project. As well, a timeframe of 10 to 15 years to develop an employee from entry level worker to experienced manager no longer exists.



## Advanced Essential Skills Pyramid



### Recommendations:

- The advanced skills pyramid (leadership, creativity, project management and communication/interpersonal skills) should be used in conjunction with HRDC's essential skills as a model of the skills needed by Canadian workers in the 21<sup>st</sup> century.
- The advanced skills pyramid and HRDC's essential skills should be used to develop courses and modules in higher education and in the workplace.
- Employers and sector council representatives are anxious to work even more closely with colleges and universities on programs, courses and modules that fill their needs. Linkages should be supported and strengthened to help facilitate a dialogue between educators and employers.

- Employers and sector council representatives are also very interested in collaborating with higher education to offer degrees in partnership with them or to provide other forms of recognition. These programs should be discussed in various forums that bring educators and employers together.
- In order to address the educational needs of advanced level workers, employers and educators need to develop innovative and flexible modes of delivery so that family time is not corroded. These modes of delivery could take the form of on-line learning or could be split between a few hours after work a few nights a week or an hour or two off work. The learning could take place either at a nearby educational institution or on a company site.
- Small and medium-sized organizations (SMOs) account for the most job growth in Canada. Educators and researchers need to explore creative solutions to skill development issues in SMOs. Skill development must be done in a flexible manner consistent with employment in SMOs. Their employees cannot take time from work and the cost must be economical. Creative solutions are essential.
- “Skills portfolios” and “passports” are educational tools that can be used in advanced skill development. Educational researchers and developers should explore ways to incorporate these tools into programs.
- “Learning clusters” of advanced skills are a potentially excellent way to provide education and training. Organizational leaders can identify skills that are needed within their workforce and, with the help of educators, bundle the training so that two or three critical skills are covered in the same course or module.
- Researchers need to determine the characteristics of “best practice” curriculum for skill development. Research and development in the skills area must also take into account the different ways in which students develop advanced skills while learning knowledge.

The next step in this research is to develop useful educational pedagogies that facilitate the learning of advanced skills. The research in this project has provided many insights into how the skills can be learned and how students and employees can enrich their personal portfolio of skills.



# Introduction

Education is the foundation of economic, social and personal growth and sustainability. All forms of education – elementary and secondary school, colleges, universities, apprenticeships and employer-sponsored training – must help students learn the knowledge, skills and values that will equip them for a constantly changing world. Colleges and universities are adapting to the complexities of work in the 21<sup>st</sup> century. Colleges in particular have been focusing on generic skills while teaching students knowledge of their chosen field. But what are the essential skills needed today and in the future for the advanced level jobs that college and university graduates will eventually occupy? When the federal and provincial governments seek to enhance training and education, what knowledge and skills should be the focus? And what are the best ways to teach and learn the knowledge and skills needed?

The major purpose of this research is to create a detailed description of non-technical, “soft” skills used by Canadians in advanced level jobs. The inventory of skills identified is common – transferable across industry and geographic sectors in Canada. The report also looks at skills that are unique to different industries and that might need special attention. It proposes a common language of skills, which can be utilized by employers, educators and policy makers. This new language of skills will facilitate plans, policies and the implementation of advanced level skills training, education and development. These are the skills critical for life-long learning and employability today and in the future. The inventory will provide life-long-learning providers with a foundation for innovative curriculum development. The report includes definitions of key terms, such as skill, competence and capability, to serve as the basis of a lexicon.

This description of skills builds on an excellent foundation of Essential Skills determined by Human Resources Development Canada (HRDC). There are nine essential skills: reading text, document use, numeracy, writing, oral communication, working with others, computer use, continuous learning and thinking skills. HRDC notes, “Essential Skills play a role in all jobs and occupational areas, although their specific form and complexity level may vary.” Significant skill shortages are predicted; Essential Skills programming is a key strategy of HRDC (*Knowledge Matters*, 2002).

The report also examines various models of workplace skills from Canada, the United States and the United Kingdom. The models are compared to determine groupings of skills into major categories, grounded in previous research conducted by Evers, Rush and Berdrow (1998).

This project is also concerned with how to educate, train and develop Canadians’ skills for advanced level positions in all industries and sectors. Learning models and inspiring stories of skill development are included to help understand the complexity of advanced skills. The education, training and development of advanced level, essential skills can be accomplished in a number of ways. Commonly, skills are taught and learned as the focus of a course or module, e.g., a writing workshop or a session on a new computer package. In more of a development mode, students might work one-on-one with an instructor and then practise on their own, e.g., on-the-job training or on-line distance education. A third model is “competency-based” education where skills are taught/learned while a topic is being covered. For example, a course on accounting that uses a computer package is focussed on accounting and a student learns the program along the way. A more advanced level example is the use of student teams in

courses. Students are learning teamwork skills while they cover the curriculum. Some outstanding examples are presented.

“Skills portfolios” and “passports” are educational tools gaining popularity. The skills portfolio is a collection of materials such as resumes, cover letters for job applications and personal mission statements in a binder with reflections on a battery of skills. In Transition from School to Work courses at the University of Guelph students prepare skills portfolios using the Bases of Competence skills model (Evers, Rush and Berdrow, 1998). Students and graduates who took a transition course have provided very positive feedback on their portfolios. Nova Scotia Community College’s (NSCC) banner proclaims it “Canada’s Portfolio College.” NSCC believes that by having students develop a portfolio they gain an “edge in the marketplace,” when seeking employment (NSCC, 2003).

Passports can be used in a variety of ways. The goal is usually to provide a record of training programs or modules. Passports can also contain more elaborate information on content of the training. These and other educational tools can help students and employees reflect on their educational experiences and reinforce the learning.

It is essential that the teaching and learning pedagogies include a good mix of theory and application. Students must learn why the skill is important, how it fits into their portfolio of skills and how it relates to

their profession. Students then need opportunities to practice and refine the skills. For example, all courses for the new University of Guelph-Humber are being developed so that specific advanced level skills are learned along with the content. An inventory of 20 skills has been identified. Course developers and instructors are asked to focus on knowledge, skills and values within their courses. Some of the learning issues to be addressed such as communication, team building and creativity will require active learning and creative modes of delivery. We are in a transitional period: there is wide-spread acceptance of the importance of advanced skills, now we need to know which skills should be given the highest priority and how we can facilitate learning of those skills.

In summary, this research focussed on skills that are critical to the future of Canadians. Relevant literature was reviewed, focussing on recent work in Canada, the United States and the United Kingdom. The researchers conducted four roundtables across Canada with stakeholders from sector councils, education organizations, employers and other sectors and conducted supplemental interviews to explore some issues in depth. This report summarizes the findings.

The report is divided into five main sections: Introduction, Research Design, Literature Review, Findings and Discussion, and Conclusions and Recommendations, and includes a list of referenced literature.

## Research Design

The approach of the present research is inductive and the orientation is qualitative. The data should be construed as exploratory in nature and useful toward providing some preliminary data for use by educational bodies to help with innovative curriculum. The data gathered comprise primarily material obtained through a series of four roundtable consultative interview sessions and, to a lesser degree, interviews.

Roundtable participants and interviewees were largely drawn from sector councils. The rationale for the selection of this group was to gain a common yet neutral ground in order to draw a representative sample of a cross-section of industry needs. Repre-

sentation was sought from all of the sector councils. If an individual contacted could not attend the roundtable, he or she was asked to suggest an alternative. A variety of occupational sectors were also addressed by the initial selection, in order to obtain variety in descriptive experience. Knowledgeable people in education, government and other employment fields were also invited (see Table 1).

The following section shows the method for both the roundtable sessions and supplemental interviews. Table 1 includes participants from both the roundtables and interviews.

**Table 1: Participation by Sector**

Industry Sector	Representation*
Business, Finance and Administration	7
Natural and Applied Science	3
Health	4
Social Sciences and Education	11
Government Services and Religion	10
Art, Culture, Recreation and Sport	7
Sales and Service	3
Trades, Transport and Equipment Operators	10
Primary Industry	2
Processing, Manufacturing and Utilities	5
<b>Total</b>	<b>62</b>

\*There were 57 participants; some are counted twice since they have an extensive background in more than one sector.

## Roundtables

The roundtable sessions were held at educational venues across the country (three colleges and one university). Sites were chosen in order to gain representation and be accessible to representatives from sector councils, industry head offices and educational institutions. Roundtables were held in Toronto, Halifax, Montreal and Calgary, thus covering the major regions of Canada.

At each roundtable session, a research team member would facilitate the general discussion and introduce the agenda. Welcoming remarks were also given by attending project supporters at each roundtable. Participants then introduced themselves to the group and provided some of their own background. The introductions were a useful and informative process for both the other participants and the research team. Some participants have extensive background and experience in more than the one sector. As a result, some participants were counted twice on Table 1, to reflect both orientations from which they spoke.

The team then formed two groups for a breakout session (three in Halifax due to the number of attendees) both led by a member of the research team (the third group in Halifax was led by the dean of the business school at Nova Scotia Community College).

Each group began the breakout discussion with different questions (group one began with question 1 while group two began with question 5). Using this approach, all questions could be covered at the roundtable and the facilitator did not have to curtail a robust discussion for fear of not covering the content within their group. After the breakout discussions, the two groups reported their respective discussions to the whole group.

Each roundtable contributed to an understanding of the complexity of advanced level skills. By the third session, the importance of “learning clusters” to advanced level skills became evident.

## Roundtable Anomalies

At the Halifax roundtable one group concluded their breakout discussion by having participants list one or two of what they would consider the absolute essential advanced level skills. This practice worked well and was continued by one group at the Montreal

roundtable and both groups in Calgary. The Montreal roundtable was bilingual. The simultaneous translation allowed the research team to add a Francophone perspective to the project data.

## Roundtable Questions

These questions were used at all roundtables to ensure consistency.

1. How would you define advanced level occupations and jobs in your industry or sector?
2. What skills are critical to these advanced level occupations and jobs (thinking in terms of HRDC’s nine essential skills plus others that are not identified)?
3. How can we educate and train employees in the skills needed for advanced level occupations and jobs? Can you think of an inspiring story about skill training and development that will help us understand advanced level, essential skills?
4. Think of an employee who was recently promoted to an advanced level job; what skills does that person possess that made him or her a good candidate for the position?
5. Are there particular issues and/or problems that are unique to your industry or sector that we should take into account in our research?

## Interviews

The supplemental interviews provided the researchers with more detail and a more robust discussion of relevant topics. Some sessions included employer presentations. As company representatives, participants illustrated what has been done to address the issue of employee skill development (most particularly in the area of leadership) and how they are implementing programs. One presentation demonstrated an innovative computer system designed to aid learner development. Other interviewees, like the roundtable participants, identified what they needed in their particular industries in order to be competitive in the marketplace, particularly in terms of improving employee skills and potential, and promoting lifelong learning.

## Data Analysis

In order to analyze the data of this report it was important to use an approach that would provide an understanding of the participants’ experience. The

first step was to do a within-case analysis of the data from each roundtable and interview in order to develop descriptive categories. These were then crosschecked against data from all roundtables and interviews. The purpose of the cross-roundtable/interview analysis was to compare and contrast the content of each group. The third and final analysis was completed with the combined data of all roundtables and interviews combined. The intent of this

final level of analysis was to make a content analysis of the entire sample. By the end of the third roundtable, it was evident that the frequencies of similar items were beginning to form clusters and these higher-level skills were interdependent.

The names used in the “Findings and Discussion” section of this report have been changed to preserve the confidentiality of respondents.





# Literature Review

A focused review of literature was conducted on the skills and competencies needed by advanced level workers in today's workplace, including innovative ways to educate, train and develop students and employees in the skills crucial to the 21<sup>st</sup> century. Definitions of key terms associated with the study of skills are included in this section as well. Detailed descriptions of the major works consulted are presented in the companion document to this report, "Highlights of Current Literature." The following summary of the literature is oriented to descriptions of workplace skills and educational applications of the skills models.

## The Changing Workplace

The 20<sup>th</sup> century was characterized by tremendous growth in bureaucracies and business organizations. In the early 1900s, Henri Fayol and Frederick Taylor characterized the functions of management and how work should be designed. As the century progressed, there was a great need for managers to run new organizations. Bureaucracies added level after level, with more power at the top levels. Business and management programs in colleges and universities grew to meet the demand for managers. The 20<sup>th</sup> century could be called the "century of management."

As we enter the 21<sup>st</sup> century, there are many differences in the labour force and the workplace. Organizations – businesses, governments, volunteer services and not-for-profit firms – have eliminated levels and changed the functions of managers and other workers. Massive mergers and acquisitions have headlined the newspapers. Employment patterns are changing and creating important implications for the way in which organizations operate. Canadian companies are facing increasing pressure to perform effectively in the context of globalization and the "new econ-

omy," but how can they ensure this competitiveness both strategically and operationally?

Employees are viewed as key to competitiveness. The need to employ individuals who can adapt to, and be successful in, new work environments is critical. Employees are being asked to use a wider range of skills and take on more responsibility than ever before. This trend has been labeled "empowerment" – where the people closest to the work take on the leadership within the unit. Livingstone (1999) argues that employees have much higher levels of skill development and a broader range of skills than they are able to use in the present workplace.

Organizational leaders have been rethinking every aspect of how organizations function. Many industries face a volatile environment in which change is nearly constant. If they are to survive and prosper, they need to respond to change quickly and effectively. Moreover, in today's flatter organizations, employees are expected to show leadership characteristics even if they are not a formal leader or manager. Leadership and management are two terms that are often used interchangeably. This report adapts the perspective that managers bring about order and consistency by drawing up formal plans, designing organizational structures and monitoring results against the plans. Leaders, in contrast, establish direction by developing a vision of the future; then they align people by communicating this vision and inspiring them to overcome hurdles.

There are also major demographic shifts underway. Far more women are now in the labour force. Many new workers in Canada are immigrants bringing a range of skills to the workplace. The proportion of the labour force with college diplomas and university degrees is increasing steadily. There are also many adult learners who wish to qualify for new, challeng-

ing jobs. Professions are upgrading the credentials required for various positions.

In Canada, in 2003, there are major changes underway in education and training and in the workplace. Employees and entrepreneurs need a wide range of general and job-specific knowledge *plus* a solid set of general and job-specific skills. Employers, educators and policy makers need a lexicon of skills that are essential to the dynamic workplace. Education and employment can be viewed as a co-managed learning process.

## Competency-Based Education and Life-long Learning

Education and training are also changing dramatically. More partnerships between educational institutions and organizations are being created and more joint programs in colleges and universities. For example, the University of Guelph and Humber College are collaborating on new programs that integrate theory and practice at the course level. Colleges in Alberta, British Columbia and Ontario can now offer applied degrees. Continuing, distance and on-line educational programs are expanding to meet the needs of adult learners. At the heart of many of the collaborations and new programs across the country is a recognition of the importance of integrating advanced level skills into the curriculum. Knowledge can be taught and learned in a variety of ways. The pedagogy, educational style and evaluation tools can enhance students' skills development or not. In a large university or college class where the instructor lectures while students take notes and are then evaluated with multiple-choice exams, students develop skills in note taking and writing multiple-choice exams. Neither of these skills is especially useful after graduation. If, in the same class, the students write a report on a research project they did in teams, they can develop a useful writing style and teamwork: two skills highly valued in the workplace.

## Skills, Competencies and Capabilities – Lexicon of Key Terms

Key terms that are foundational to this analysis include: skill, competence and capability. These form the beginning of a lexicon of terms that will continue to be developed.

“Skill” is a multifaceted concept defined in many ways. In *The Bases of Competence*, Evers, Rush and Berdrow (1998, p. 24) used conceptions by Attewell and another by Boyatzis to define skill. Attewell's (1990, p. 433) article “What Is Skill?” addresses the complexity of the concept: “Skill is the ability to do something, but the word also connotes a dimension of increasing ability. Thus, while skill is synonymous with competence, it also evokes images of expertise, mastery and excellence.” Boyatzis (1982, p. 33) proposes that “skill is the ability to demonstrate a system and sequence of behaviour that are functionally related to attaining a performance goal...it must result in something observable, something that someone in the person's environment can “see.” For example, planning ability is a skill.”

In *The Bases of Competence*, the authors used “competence” to represent a set of skills and the level of ability on the skills within the set (Evers, Rush and Berdrow, 1998). They view employee competencies as “attribute bundles” (McLagen, 1997) and suggest that effectively-implemented employee competencies would be associated with superior organizational performance.

In French Canada, the terms “savoir, savoir-faire et savoir-être” (knowledge, skills and attitudes) are commonly used to distinguish the three main elements of what are understood as competencies. The “taxonomie des objectifs pédagogiques” from which these are derived is adapted from Bloom's taxonomy of learning (see Table 2). The inclusion of attitudes within the notion of competencies is consistent with recent research on the crucial importance of “soft” or “emotional intelligence,” much of which includes strong attitude components. These are more difficult to learn in the traditional sense, but experience has shown that learners can be sensitized to their importance and can model and develop new attitudes essential to such skills as working in teams, in inter-cultural-international contexts or in terms of fitting into specific workplace cultures. This three-element framework has been broadly used in recent times within the Canadian college system in developing curriculum.

An evolving literature in the United Kingdom has advanced our understanding of skills in the workplace. Instead of skills or competence, UK authors use the term “capability.” Capability is meant to promote the confluence of integrated competence and life-long learning. These integrations of performance with learning ability factors empirically clarify the relationship between competence and capability, which is a more future oriented construct. (O’Reilly, Cunningham and Lester, 1999).

*Advanced skills* as defined by the steering committee for this research project have some elements of skills, competencies and capabilities. They are clearly skills but their advanced nature is similar to competencies, in that they represent a set of more specific skills. They are also like capabilities in that they capture an integrated set of skills that can form the basis for life-long learning. The Request for Proposals (RFP) for this project (2002) defined advanced skills as “generic, non-technical, transferable skills that are common across industry sectors and geographical regions. These are often the skills that are lacking or outdated, such as management skills or managing change skills that can hamper the advancement of workers and organizations.”

The skills are transferable – not specific to an industry or organization – so that an individual grounded in these skills is highly employable and able to move across industries and geographic regions as work and organizations evolve. In order to maintain their skill levels, individuals must be life-long learners, constantly refining and expanding their knowledge and skills.

## Models of Skill Development

The employee competencies necessary for success in the dynamic, competitive environment of the 21<sup>st</sup> century have been proposed by several major studies. Table 2 summarizes the studies that are the most relevant to the mission of this research project.

Bloom’s (1956) famous taxonomy of learning is used by many educators to develop curriculum. The lowest level is “knowledge,” where the student is learning just the content. The second level moves into comprehension of the knowledge. The third level of complexity is application. Here a student can use the knowledge in different ways. The next levels involve much more complexity. These are analytic synthesis and evaluation. University programs typically would want students in third and fourth-year courses to be proficient in analysis, synthesis and evaluation. These are also the types of applications of knowledge advanced level workers would employ.

Chickering and Reisser (1993) formulated another model of development that has been widely cited. There are seven vectors of development in their model: developing competence, managing emotions, through autonomy toward independence, developing mature relationships, establishing identity, developing purpose, developing integrity. These vectors go beyond skills development and look at various traits that develop with maturity. Table 2 lists the vectors and how they align with Bloom’s taxonomy.

**Table 2: Learning and Development Models**

Bloom <i>Taxonomy</i>	Chickering and Reisser <i>7 Vectors of Student Development</i>	Evers, Rush and Berdrow <i>The Bases of Competence</i>	Baxter-Magolda <i>Epistemological Reflective Model</i>
Knowledge	1. Developing competence 2. Managing emotions	Managing self	<i>Knowledge: receiving and mastering</i>
Comprehension	3. Through autonomy toward independence 4. Developing mature relationships		
Application	5. Establishing identity	Communicating	<i>Transition: understanding</i>
Analytic synthesis	6. Developing purpose	Managing people and tasks	Independent thinking
Evaluation	7. Developing integrity	Mobilizing innovation and change	Contextual knowledge: Responsive

**Sources:** Bloom, B. S. *Taxonomy of Educational Objectives: Book 1: Cognitive Domain*. London, UK: Longman. 1956. Chickering, A.W. and Reisser, L. *Education and Identity, 2<sup>nd</sup> edition*. San Francisco, CA: Jossey-Bass. 1993. Evers, F. Rush, J. and Berdrow, I. *The Bases of Competence: Skills for Life-long Learning and Employability*. San Francisco, CA: Jossey-Bass. 1998. Baxter-Magolda, M. B. *Knowing and Reasoning in College: Gender-Related Patterns in Students' Intellectual Development*. San Francisco, CA: Jossey-Bass. 1992.

Baxter-Magolda (1992) developed: “an epistemological reflection model.” It is based on students’ perceptions of the nature of knowledge. It describes four ways of knowing and their development through the college experience. The top two levels – independent knowing and contextual knowing – are applicable to the use of advanced skills in the workplace. Being able to work independently and within different contexts are critical to today’s evolving workplace. Reflection is a key element in development in Baxter-Magolda’s model. This reinforces the use of tools such as skills portfolios and journals in personal development.

Schön’s (1987) “point of departure is the competence and artistry already embedded in skillful practice” (p. xi). This is related to the way experiential education is now formulated with the essential component of self-reflection. Another way to look at what he advocates is through his “coaching” approach to teaching where students are helped to learn, rather than being taught. Many colleges and universities, including the University of Guelph, advocate a learner-centred model of higher education. Professors provide the theories, principles, abstract models

and methods for students to become self-reliant learners. As we think about advanced skills development, the emphasis must be on student and employee learning rather than on professors’ teaching.

The Conference Board’s *Employability Skills 2000+* is a widely used model in Canada. It consists of fundamental skills, personal management skills and teamwork skills. The model is oriented to all workers: “The skills you need to enter, stay in and progress in the world of work – whether you work on your own or as part of a team.”

### The Bases of Competence

The advanced skills project builds on the work of a long-term research project: *Making the Match between University Graduates and Corporate Employers*. The project was a survey-based analysis of skill competencies of university students and graduates working in organizations in Canada. Phase One examined the adequacy of university education for corporate employment. The Phase Two study was conducted to investigate the skill development process from the early years of university to the 10-year

point in individuals' careers within Canadian corporations. The Bases of Competence skills model and the results of Phase Two are described in *The Bases of Competence: Skills for Life-long Learning and Employability*, (Evers, Rush and Berdrow, 1998).

A set of 18 skills form the heart of the questionnaires completed by 1,610 students, graduates and managers for Phase Two. The students and graduates were asked to assess themselves and managers (nominated by respondents) assessed university graduates working in their departments. The skills inventory was analyzed to determine if any logical groupings within the 18 skills exist. Four distinct combinations emerged which were found to be consistent with the evolving literature on skills and which capture the current Bases of Competence necessary to work in today's workplace:

1. *Mobilizing innovation and change*: ability to conceptualize, creativity/innovation/change, risk-taking and visioning;
2. *Managing people and tasks*: coordinating, decision-making, leadership/influence, managing conflict and planning/organizing;
3. *Communicating*: interpersonal, listening, oral and written communication; and
4. *Managing self*: learning, personal organization/time management, personal strengths and problem solving/analytic.

Technical skills did not group with any of the four base competencies. Clearly important to today's workplace, computing and other technical skill areas should be dealt with as a distinct skill set.

A major application of this research is to the development of competency-based education. Given the changing nature of organizations and the rapid evolution of knowledge, college and university graduates need a sound foundation of skills within the base competency areas. Various universities and colleges in Canada and the United States are using the Bases of Competence model in their curriculum development and as a framework for skills portfolios and other applications.

## HRDC's Essential Skills

HRDC started the Essential Skills Research Project in 1994. These skills are key to full participation in the workplace and serve as a basis for life-long learning. There are nine skills, as represented in Table 3, focusing on jobs at the entry levels of the National Occupational Classification system. These skills form the foundation for this report's analysis of advanced level skills.

**Table 3: HRDC Essential Skills**

Essential Skills
Reading text
Document use
Numeracy
Writing
Oral communication
Working with others
Computer use
Continuous learning
Thinking skills (problem solving, decision making, job task planning and organizing, significant use of memory, finding information)

Source: <http://www15.hrdc-drhc.gc.ca/english/profile.asp>

## Values

It is important to note that the full domain of education and training involves knowledge, skills and values (KSV). Knowledge is the information and principles that teachers teach and students learn. Values form another major aspect of education and training, and include integrity, work ethic, sensitivity to diversity, empathy for others, and so on. Although this report focuses on skills, values cannot be ignored.



# Findings and Discussion

## Question 1: How would you define advanced level occupations and jobs in your industry or sector?

In responding to question one, participants often included items from question two. In an attempt to separate findings into two sections (question one and question two) the items listed in this part will comprise primarily a list of specific jobs or positions held by an individual. Skills that were identified as part of these occupations will be discussed in the following section.

Almost all roundtable groups agreed that advanced skills are needed at the level of supervisor and above. Some exceptions are found in certain professions. For example, in healthcare and the natural scientific field, complex specialized knowledge is required even in a fairly junior position. Definitions of advanced level positions also included skill sets that challenge an individual to keep pace in a technically changing environment.

Examples of advanced skill occupations included:

- Design technicians
- Estimators
- Middle and senior managers
- Quality control technicians
- Quantity surveyors
- Senior technicians
- Supervisors
- Highly specialized technical skill professions
- Jobs that involve any of the following: degrees of accountability and responsibility, decision making, looking after a budget, risk assessment or innovative thinking, strategic planning, strong negotiating skills

- Professions such as: engineer, doctor, dentist, lawyer
- Positions that require credentials

## Question 2: What skills are critical to these advanced level occupations and jobs (thinking in terms of HRDC's nine essential skills plus others that are not identified)?

Definite themes arose from the responses to this question and a model was developed to capture the collected data. Common to all answers (as implied in the framing of the question) was the mention of HRDC's nine essential skills (see Table 3 above) and many participants added "plus, plus." Clearly, the essential skills list captures the essence of required workplace competencies for a broad range of positions and permeates to all levels of a company. Individuals at progressive points needed a deeper level of complexity than the essential skills list and quite often mentioned clusters of skills. For example, an individual not only needs to "read and comprehend" a document, but also needs to use *advanced* "thinking" skills to synthesize and evaluate the information (as per Bloom's 1956, *Taxonomy* model of learning); and, in some cases, use the material to operationalize a method of production or implement an action. In a sense, as the name may imply, the advanced skills are seen as the next layer to the current essential skills, thus the current study builds on the sturdy blocks of previous research. The essential skills list was also seen as a useful tool for a common language of understanding.

The participants put a lot of emphasis on leadership and the qualities an effective leader should possess. Within leadership, there were numerous mentions of inspiring others, mentoring, coaching, willingness and desire to help others in addition to career advising. Related to these skills, participants mentioned



team building skills, the ability to work with multi-disciplinary teams, effective networking and being able to shift from being a leader to a follower. There was recurring mention of leaders being sensitive to diversity.

Project management was discussed repeatedly. Within project management, environmental and situational awareness came up as well as being able to navigate a production process, risk management, risk analysis, quality control, evaluation and information management. Included in project management are financial and strategic planning considerations such as, budget management, accountability, security checks, financial analysis, forecasting and the ability to live within constraints. Problem solving – including the ability to research, analyze, synthesize and dissect a problem – was also commonly referred to as an advanced skill.

Participants discussed creativity and innovation in many forms during the roundtables. Creativity is clearly another major category of advanced skills. Within creativity, skills such as visioning, “big picture” and “outside the box” thinking, curiosity, risk taking and entrepreneurialism were highlighted. Problems that face us today in Canada are clearly complex and multi-faceted. Organizations in all sectors require creative solutions.

The fourth major category of advanced level essential skills is communication/interpersonal skills. Interpersonal skills were described as: understanding the subtle details and precise needs of some industries; negotiating and conflict resolution; giving oral presentations; and, writing business proposals, reports, plans and documentation interpretation. Ability to teach others is another important communication/interpersonal skill.

These four advanced skills categories: leadership, creativity, project management, and communication/interpersonal skills form the basis of the researchers’ major finding. These skills are graphically represented in Table 4 as a pyramid. This pyramid is built upon HRDC’s list of nine essential skills as shown in Table 3.

During the roundtables, participants mentioned values such as, a positive attitude, flexibility, business etiquette, high ethical standards and sensitivity to multicultural issues as critical to advanced level workers in the 21<sup>st</sup> century. Values were not incorporated into the advanced skills pyramid model but they are clearly an important aspect of work.

### **Question 3: How can we educate and train employees in the skills needed for advanced level occupations and jobs? Can you think of an inspiring story about skill training and development that will help us understand advanced level, essential skills?**

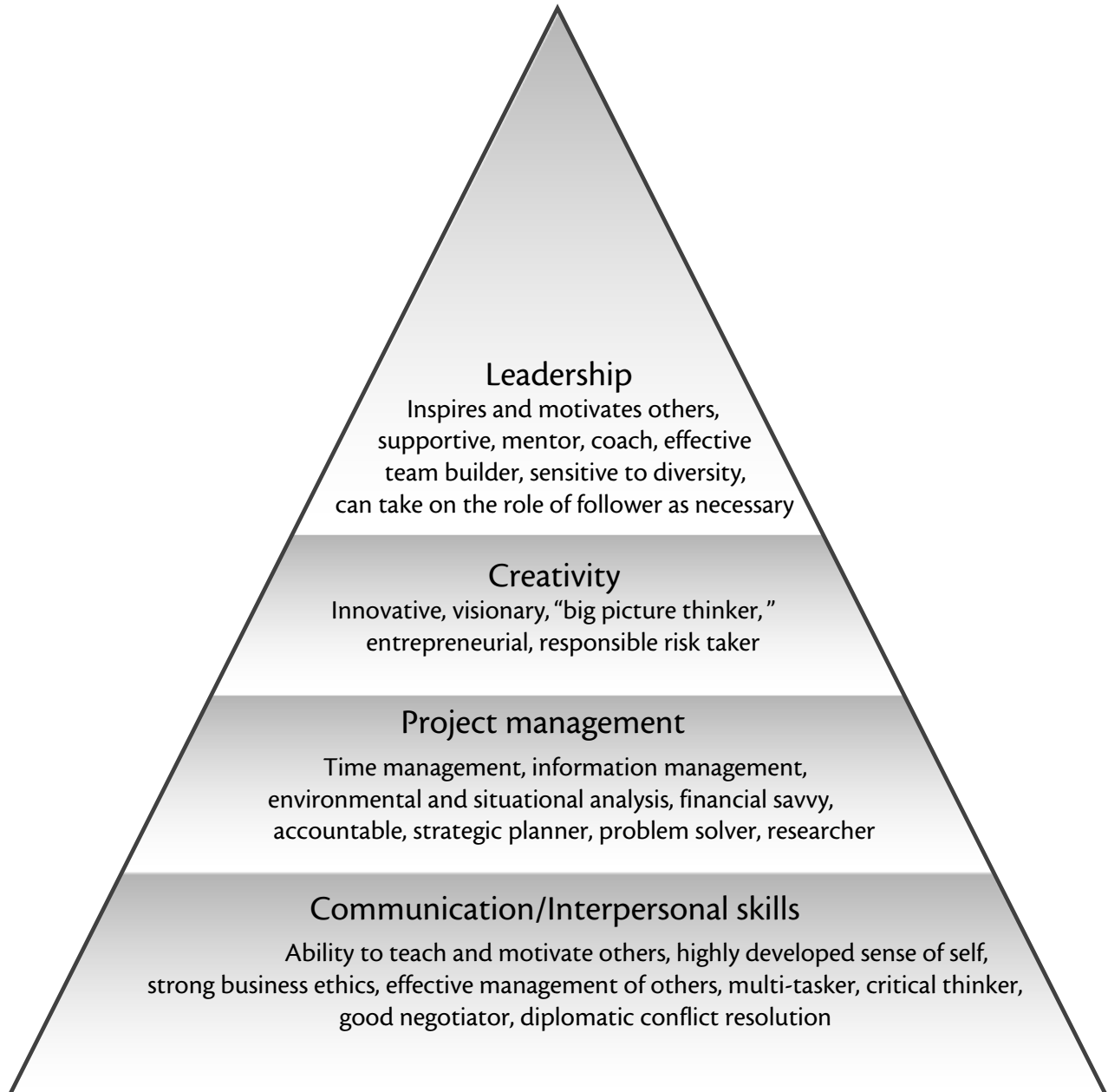
Several categories of education and training began to emerge when analyzing question three. First, credentials were found to be of great importance in terms of training and development being recognized across and within industry sectors. Companies expressed interest in “partnering” with education to gain this recognition. However, this also presents some problems in relation to access from small businesses. These issues are discussed under three sub-headings: The Context and the Credential, Accessibility and Credential Creep, and Collaboration – Industry and Education.

The sub-heading, Communication and Language, explores another theme: Canadian cultural diversity. Our official languages of French and English are not the only language consideration modern workplaces deal with; Canada is rich in many cultures and sub-groups within a culture. At all roundtables, participants mentioned that advanced level jobs require sensitivity to diversity and multiculturalism.

Organizational learning culture emerged as yet another theme, explored under the sub-heading, Best Practices and a Learning Culture. The companies discussed adopted a new, more democratic style of leadership as opposed to an older, more authoritative style. In flat organizations, teamwork is paramount and in order to create strong teams investment in the employee must be made. Developing and investing in individuals creates loyalty to the company and interest in the corporation’s success.

The final sub-heading under question 3 findings, Evaluation Issues, explores other factors in advanced essential skills education and training.

**Table 4. Advanced Essential Skills Pyramid**



### **The Context and the Credential**

Several representatives of small business emphasized that they do not have the resources of large businesses for education and training. One small industrial complex in southwestern Ontario contains about 100 small businesses. One firm from this complex identified learning needs for its workforce but lamented that assistance of local higher education institutions did not appear to be forthcoming, although it would be extremely beneficial. It was suggested that colleges and universities collaborate with all the small businesses in the complex to design, implement and evaluate a management program on site. After a work day, employers hope that university and college staff would travel to the employees' work places for a session from 4:30 to 6:00 p.m., two or three times a week, for example. In this way, employees could take leadership and managerial development training while maintaining a balance between career improvement and family life.

Employers recommend that such programs be credentialed with a certificate or diploma that would be recognized by their industry sectors. The value and necessity of having a credential to show to perspective employees and to managers for promotion was emphasized.

### **Accessibility and Credential Creep**

It was noted by some participants in the eastern region that some technical programs were experiencing low enrolment and increasing entrance requirements. This poses a problem for some highly skilled non-academic people. One example is a skilled, amateur auto mechanic who fixes the family vehicle. Without a high school diploma, it is difficult for such an individual to gain admission to a community college for formal training.

When college administrators decided to evaluate the admission requirements, they discovered that there had been a "credential creep." Many skilled trades' people could not gain entrance to essential skills training. At one eastern college, the president's team reviewed the escalating admission requirements in order to increase access to their college. They discovered that contradictory practices were being executed and they sought to rectify the original mandate of access in the college system in that province.

### **Collaboration – Industry and Educators**

Industry leaders insist that education be a collaboration between those working in higher education and the people in industry who produce the services or end product. Although business executives and industry managers often believe that technical training is the crucial educational need, companies emphasize that they can deliver the technical training but the need in their work environment is for people to have an overall understanding of the context of their industry.

Most industries hope to place people in positions where they are not underemployed or undervalued. Industry leaders gave many examples where a good worker on the mill floor was promoted to foreman and failed. Knowledge about what that promoted worker needs to succeed in the new role is what industry wants teachers to provide – both the advanced essential skills required for leadership positions and how this learning is to be delivered. Some participants suggested that scenarios relevant to what the worker will experience in the business world be included in the design of curricula, with a focus on problem-solving. They further suggested that if teachers cannot be in the actual work place, it is imperative that educational tools be as true-to-life as possible, using simulation exercises, role-playing and analyzing videotaped playbacks.

Another requirement for delivery of education was that employers did not want workers learning in isolation. Industry administrators emphasized that they should be working in team-building exercises. Furthermore, industry organizations reported that their organizational structure was flat and team work was universal throughout their plant, office or worksite. Some were of the opinion that colleges are performance oriented without sufficient consideration of other factors, particularly human issues and the context in which modern offices process the work to be done.

### **Communication and Language**

In the Far North, lack of a common language is a challenge for educational developers, as there are 47 native dialects. Inuit employees who are trained to be managers of general stores have to think and work with others, not just know the essentials of being a small business manager. Almost everyone has

the capacity for picking up a new language and this intuitive communication should be expanded as an advanced essential skill.

Given the diversity of the Canadian workforce, employees need to have a sensibility not only to language issues but also to racial and ethnic differences. An example was given of a team going to an off-shore oil rig that might have a Turkish engineer, an Asian laboratory technician, an American mechanic and a Canadian team leader from the company's head office. Each employee is expected to communicate with the other in order to get the job accomplished. Each person will have a different perspective and background experience as to what constitutes tolerance in racial and ethnic issues. They may also have different attitudes and perspectives on leadership.

One western community college relates that it was asked to assist an assembly line with an English as a Second Language (ESL) program. At the industrial site, there were 18 languages being spoken but the production line was moving well and meeting the quota goals flawlessly. The educators concluded that somehow these workers were communicating and meeting the expected manufacturing outcomes; in this scenario, was their expertise in ESL really needed? Though the company wished to provide resources for their employees to learn the predominant language of the community, the workers needed to be convinced that it would be beneficial. Eventually, the continuing education arm of the college attracted the students but said that it was a "hard sell."

In Montreal, the context of learning must include the social milieu and cultural realities of the community. The continuing education department at one Quebec university has the largest ESL enrolment in Canada. Large cities such as Montreal, Toronto and Calgary attract immigrants, as they offer more opportunities for employment. Therefore, some faculty in those cities were not only concerned about Francophone and Anglophone employees but also about Allophones (those with a mother tongue other than French or English).

### **Best Practices and a Learning Culture**

There is debate around what "best practices" for an organization should be. Those organizations that

have created a "learning culture" are respected throughout their sector and often appear on lists such as "Top 100 Employers, the best companies in Canada to work for and why" (*Macleans*, October 2002). On the other hand, one roundtable group agreed that there were two kinds of culture: a collegial one and a hostile "Machiavellian" one as in some public and private organizations. One group was of the opinion that stringent adherence to a "management by objectives" style focuses on an end result but does not pay attention to the process – the critical path of getting to the end result.

Another group of participants thought that an autocratic style might lead to high performance but in the long run does not generate sustainability and loyalty to the company. On the other hand, good organizations that have a learning culture demonstrate collaboration, have a freedom to learn and can work as a team. This type of culture requires support from senior administration downward. Organizational culture is difficult to change unless this top-down infrastructure is developed. A learning culture requires that the perception that learning is something which is *done* to us be altered to the belief that learning is something we *participate* in and continue to do so throughout our career. A non-learning culture usually does not have clear objectives or a sense of congruency of purpose: goals are unconnected and the process of achieving good outcomes is often undermined. Sometimes the most capable managers are not recognized by top management and the atmosphere of the organization tends to be hostile and lacking any sense of collegiality.

Defining learning culture is difficult but, by examining a firm where learning and development are highly regarded, one can recognize how an organization demonstrated the meaning of the term. One southern Ontario steel company is an excellent example of an organization with a learning culture. Goals to help make a competitive and sustainable Canada and to improve their ranking from 35<sup>th</sup> to 5<sup>th</sup> most profitable steel company in the world are made very clear by the president. Major challenges are the speed to market and doing more with less. There have been many changes and downturns in the market as the small company grew. It now has a flat organizational structure and a workforce that constantly needs upgrades to newer skills.

As one-third to one-half of the company's workforce will be 65 by 2011, company officials did not have 10 to 15 years to train potential leaders in advanced skills but needed to fast track such teaching. Succession planning and training in advanced skills were immediate issues. The company conducted a survey that revealed a gap in leadership. A system for leadership development was instituted that saw 300-400 members of the 7,000-person workforce nominated by their superiors for leadership development. More recently another program, workforce rejuvenation, was instituted for another group that demonstrated competence and mastery in their area of expertise. These groups were identified as having the capabilities necessary to become strong leaders. The aim was to link strategy, culture and the organization's values with skills. The company needed an integrated vision, an orientation to leading and coaching for high performance.

The company approached three institutions of higher education in the area for short courses in management skills. Executive MBA programs were deemed too time consuming and would take away from family time and employee values that were part of company philosophy and brand image. The institutions of higher education not only stylized the courses for the organization but also paid attention to the best career path for each student. Employees also wanted the ability to access university/college courses in-house, so some programs were hosted in-house while others were offered immediately after work at a nearby centre for continuing education. Debate sessions centred on such topics as, "What are the gold standards that are going to make us competitive?" The educational strategy was to define the branding or the image of the company.

#### **Evaluation Issues**

Leadership develops from experience, although some leaders are gifted with more ability than others. However, advanced skills in managing others can be fostered as long as workers can learn and be challenged. If peers take the time on the job to mentor colleagues, this informal learning and teaching needs recognition and support. Some leaders possess natural guidance aptitudes and can act as mentors similar to the model used in apprenticeship training. Other employees are

good administrators but poor teachers: good on the line but poor foremen. For example, how do you prepare a manager for coping with an extremely difficult personal situation? Suppose there is a need to down-size: How do you deliver bad news? What are the best methods to assist managers in handling these difficult situations? One demonstrates leadership by how well one does these difficult tasks. Models using simulations and problem-based scenarios have to be structured with opportunities for learning as close to the real work experience as possible.

More in-house development skills and management training programs are required. In order to expand these endeavours, industry association trainers and collaboration with post secondary education institutions are necessary. A dialogue with peers and increased evaluation and feedback constantly improve the progress of an employee toward advanced skills. As the employees gain experience and move through the company, they should be recognized for these experiences. Some companies recommend the use of such personal preference profiles as the Myers-Brigg in order to understand their employees. Some share the results in order that their employees have a better understanding and tolerance for the preference of others. Some recognize that they have participated in programs in their area that demonstrate best practices. When designing in-house programs, the highlights of these best practices need to be incorporated into other curricular designs.

#### **Question 4: Think of an employee who was recently promoted to an advanced level job; what skills does that person possess that made him or her a good candidate for the position?**

Participants described an exceptional employee as one who has skills in the following areas:

- Leadership
- Communication
- Team building
- Conceptualization
- Visioning
- Problem solving

They described the ideal leader as having a mixture of essential skills complemented by sound managerial as well as technical abilities. A managerial leader also needs sufficient physical energy to put in the extra hours involved and to handle a significant volume of work.

When promoting individuals, employers look for demonstrated ability to lead and adherence to the core values of the organization. Measuring these is difficult and managers need to communicate with each other to identify those individuals who show promise.

For example, “Brian” was a front office manager who had a vision as to what his department could be. He saw how it could improve and began to draft a plan to initiate positive changes. Using the 10 years of experience he had gained from other positions, he did all the training himself in a non-threatening manner and motivated others to act as a team. Brian demonstrated good interpersonal skills and facilitated problem solving with the rest of his colleagues. As well as possessing excellent writing skills, he was a good communicator and had strong negotiation abilities. He demonstrated trust in his co-workers by allowing them to work independently and make decisions.

When Brian was promoted, it was a very popular move among his co-workers. His administrator described Brian as having initiative, customer focus, competency and commitment to continual learning. He not only had a clear vision of where his department could do better but was thinking two to five years ahead. His supervisor reported that he was empathetic, a great listener, dealt well with stress and had decision-making and problem-solving skills.

One group of administrators agreed that they look for employees who exhibit a positive attitude and evidence of continuing education. For example, a recent article in a Montreal newspaper featured a South American woman who entered a two-year, university continuing education ESL program. After becoming proficient in English, she enrolled in a computer applications program and returned the following year to study desktop publishing and graphic design. She is now taking a French course. With these new skills, she was selected for a “dream job” pro-

gramming Web sites for a communications company. She notes, “I was hired because they saw from my CV that I was willing to learn and that I learn quickly.” When asked why she was the chosen candidate, the employer replied that her demonstrated love of continual learning convinced them she would probably continue with life-long learning and these are the kind of individuals the company was seeking.

In another example, a small information technology firm had a great product idea but did not have the marketing expertise to get their product to market. “Mary,” an excellent programmer, was hired, but was extremely shy. The job required her to give presentations and demonstrations to companies five days a week. As she was highly valued for her specific programming skills, the company paid for Mary to take a recognized public speaking program. As time went on, her ability to address audiences grew through other business courses and job opportunities, and this employee is now vice president of the company.

Though a small company, this employer identifies about three to five percent of its employees for further leadership development and project management training funded by the company. Rather than being drawn to a competitor when the education is complete, the employee is likely to be more committed to the company with the result that employee turnover rate is well below average. This group of administrators concluded that if workers are recognized as specialists in their field, employers can ask them for a personal investment of three days or two hours at the end of a work day to enhance the skills they need to move forward.

Comments such as “vision” and “thinking outside the box” were repeated many times and it was noted that the education obtained in Masters and MBA programs contains a broader perspective on the global environment and social milieu.

New hires who are recent graduates need a leader to give them a clear understanding of the job and knowledge of how the organization functions. The orientation should include an understanding of the major issues that affect the company and the importance of soft skills both in customer relations and in team building among fellow workers. The importance of performance appraisals as a tool to measure

growth and direction for future development was emphasized.

**Question 5: Are there particular issues and/or problems that are unique to your industry or sector that we should take into account in our research?**

The increasing number of aging professionals in the health system, in education and in many established industries is such a great problem that human resource departments have become much more active in training managers and planning for replacement. Managers of many sectors stated that their focus was on learning and particularly staff development in human resources. Information technology was the only sector with predominantly young recent university graduates who related that their focus was on project management and sustaining the critical path.

In the academic environment, enforcement of retirement at 65 is not as stringent as in business and commerce. However, with the huge number of retirements that are due, universities cannot retire everyone as junior faculty need time to establish their research base and are not as experienced in mentoring graduate students. This is not just a regional problem in Ontario with the double cohort, but is a national issue due to the large number of faculty hired in the Sixties who are now retiring. As well, more young people are seeking post-secondary education in North America and the education dollars have not been available to hire new faculty in recent decades. In higher education, the solitary scholar is respected for research; a department is sustained by its academic knowledge. As administrators, how do leaders support and encourage the very bright and curious to shine like renowned scholars such as Northrop Frye and John Polanyi?

Participants in the Atlantic session stated that basic essential skills are needed as well as advanced management and leadership development. In some areas, there is a high turnover rate and, once trained, many young people leave for the larger cities attracted by the higher salaries. Some large companies in the Atlantic Provinces in oil and food processing are having succession problems. Other barriers that were mentioned were the lack of educational linkage between high school and college entrance, and lack of credit recognition between colleges and universities.

One suggestion was made that a seamless educational system be instituted and a remedy be found to repair the breakdown of the lack of articulation between and among courses, programs and institutions of higher learning.

Small business representatives commented that, “A large conglomerate can afford to put on really good training programs but what can higher education do for small business?” Small businesses have limited funds for development and need advanced skills today not two to five years from now. This sentiment was echoed across the country. It was also mentioned that government employment insurance is an impediment to further schooling in some provinces. Some asked if businesses should be able to use the EI surplus for retraining and move toward a more seamless and accessible educational system.

Some participants from the hospitality sector complained that companies in this industry are often inconsistent about their training programs, and lack resources and administrative support. They use highly sophisticated computer systems and many employees have difficulty adjusting to these technical challenges. Some event organizers demonstrate very advanced skills in managing a large volunteer sector. Some participants from the hotel and tourism sector asked for advanced skills in writing a business plan and negotiating with town and county politicians.

Some of the aviation sector participants noted that in their industry women and visible minorities are underrepresented. Several groups agreed that there was a problem promoting life-long learning to keep people expanding their skills. Many industries voiced the sentiment that they try to identify the “keener” who wants to learn and work with the people who want to grow, as career training also helps retention. Some trainers are using new methods of delivery and try to clarify expected outcomes. Skills in conflict resolution and collective bargaining are included in every level of the aviation industry.

In the college system, students appear to want more advanced leadership skills. They are more action-oriented than thinking and planning. Sensitivities are hard to teach in this context of hard skills. The information management sector would like to bring up entry level people. Though they are technically ori-

ented they don't have the other soft skills. How does one measure the value of skills, especially soft skills? More Prior Learning and Assessment Recognition is needed to credit hard skills but it is hard to accredit soft skills areas. Also, communication such as record keeping and advanced documentation is cited as lacking in many cases. All industries said they need soft skills, people management, technical management to manage others in technical roles and project management direction skills.

The steel industry is losing 25 to 50 percent of its manufacturing, trades and management people to retirement. This industry needs more trainers who are prepared in the soft skills. Though they are technically oriented, they need to improve their training skills. "Succession planning is a problem in that we have 1,000 people leaving and their successors don't

have the generalist skills of leadership and management: they have too narrow a view."

One participant came with a list prepared with his fellow workers of skills needed in his organization.

- The power to negotiate successfully is used everyday to settle disputes between employees and customer complaints, and makes the difference in landing large and small contracts.
- The art of handling stress needs to be taught, as the greater the responsibility the greater the stress.
- The ability to empathize with fellow workers is needed; that is, to read each situation carefully, to provide direction and goal setting when needed, and to develop a caring attitude toward employees.





## Conclusions and Recommendations

The purpose of this research project was to create a detailed description of advanced level skills and investigate models of skill delivery in higher education and organizations. The research was done using the insights of professionals from sector councils, as well as professional educators and employers at roundtable sessions and through interviews.

A number of advanced level essential skills were discussed at the roundtables and during the interviews. These are skills that build on HRDC's essential skills. The pyramid of advanced essential skills proposed in this report builds on the essential skills as well as knowledge across industries. Values such as a positive attitude and ethics form an important aspect of the foundation for today's workplace. Leadership, creativity, project management and communication/interpersonal skills were identified as four major groups of advanced skills. More specialized skills are included under each of the four skills (see Table 4).

As well as building on the nine essential skills of HRDC, the four categories of advanced skills are consistent with *The Bases of Competence* (Evers, Rush and Berdow, 1998). Since this study and the *Making the Match* Phase Two study (which resulted in *The Bases of Competence*) were done with entirely different samples and 12 years apart, this is a good validation of the advanced essential skills pyramid.

Participants at the roundtables often mentioned skills in clusters. It became clear that these "learning clusters" could be used to develop skills in courses and modules. Some examples would include: strategic planning with team building, project management with leadership, and multi-tasking and word processing with writing business letters.

There is more to the capable practitioner than command of a professional body of knowledge or the

ability to demonstrate competence at work. Those involved in professional development and higher education face a challenge: to move beyond considerations of knowledge and competence to helping people develop as capable practitioners equal to the challenges of fluid environments and unpredictable change. People need to take responsibility for their careers and their learning and be able to exercise the practical judgment and systemic wisdom needed for a sustainable future in a variety of sectors.

Tools such as portfolios and passports help students identify their skills in all levels of training and, in return, specialty training can be given in industry sectors designed to encourage growth from within the organization. Passports, accounting for past experiences and learning, could allow employees to become more mobile in moving up the career ladder of their choice.

As in other countries such as the United Kingdom, Canada has many of the organizations needed to develop programs that address the skill shortages in the trades and other occupations requiring leadership and management skills. Some of the skilled trades occupations in such sectors as lumber and gas have undergone such a rapid pace of change that these industries have not had the time to partner with their human resources and career guidance centres in order to counsel and train people for career building. If an industry is depressed, training is the first item to be cut. These workers need both essential skills mixed with advanced skills. As well, a company's infrastructure needs the support to develop training programs and give recognition to employees who complete the program. There was consensus among project participants that there was a need to recognize existing skills by assessing them and giving them credit. These skills can be fitted into a passport or portfolio to be recognized not only for possible career path and

career counselling but for a recognized and valued post-secondary credential.

A major feature of these developments is an emphasis on developing employee/student autonomy in learning. The roundtables confirmed that circumstances in the world of work and in society are putting a premium on developing advanced skills, adaptability, working together and learning from experience.

## Recommendations:

- The advanced skills pyramid (leadership, creativity, project management and communication/interpersonal skills) should be used in conjunction with HRDC's essential skills as a model of the skills needed by Canadian workers in the 21<sup>st</sup> century.
  - The advanced skills pyramid and HRDC's essential skills should be used to develop courses and modules in higher education and in the workplace.
  - Employers and sector council representatives are anxious to work even more closely with colleges and universities on programs, courses and modules that fill their needs. Linkages should be supported and strengthened to help facilitate a dialogue between educators and employers.
  - Employers and sector council representatives are also very interested in collaborating with higher education to offer degrees in partnership with them or to provide other forms of recognition. These programs should be discussed in various forums that bring educators and employers together.
  - In order to address the educational needs of advanced level workers, employers and educators need to develop innovative and flexible modes of delivery so that family time is not corroded. These modes of delivery could take the form of on-line learning or could be split between a few hours after work a few nights a week or an hour or two off work. The learning could take place either at a nearby educational institution or on a company site.
- Small and medium-sized organizations (SMOs) account for the most job growth in Canada. Educators and researchers need to explore creative solutions to skill development issues in SMOs. Skill development must be done in a flexible manner consistent with employment in SMOs. Their employees cannot take time from work and the cost must be economical. Creative solutions are essential.
  - “Skills portfolios” and “passports” are educational tools that can be used in advanced skill development. Educational researchers and developers should explore ways to incorporate these tools into programs.
  - “Learning clusters” of advanced skills are a potentially excellent way to provide education and training. Organizational leaders can identify skills that are needed within their workforce and, with the help of educators, bundle the training so that two or three critical skills are covered in the same course or module.
  - Researchers need to determine the characteristics of “best practice” curriculum for skill development. Research and development in the skills area must also take into account the different ways in which students develop advanced skills while learning knowledge.

The next step in this research is to develop useful educational pedagogies that facilitate the learning of advanced skills. The research in this project has provided many insights into how the skills can be learned and how students and employees can enrich their personal portfolio of skills.

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