Measuring and Monitoring Literacy and other essential skills: What the data imply for the electrical trades in Canada

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Why we care about skills and learning :

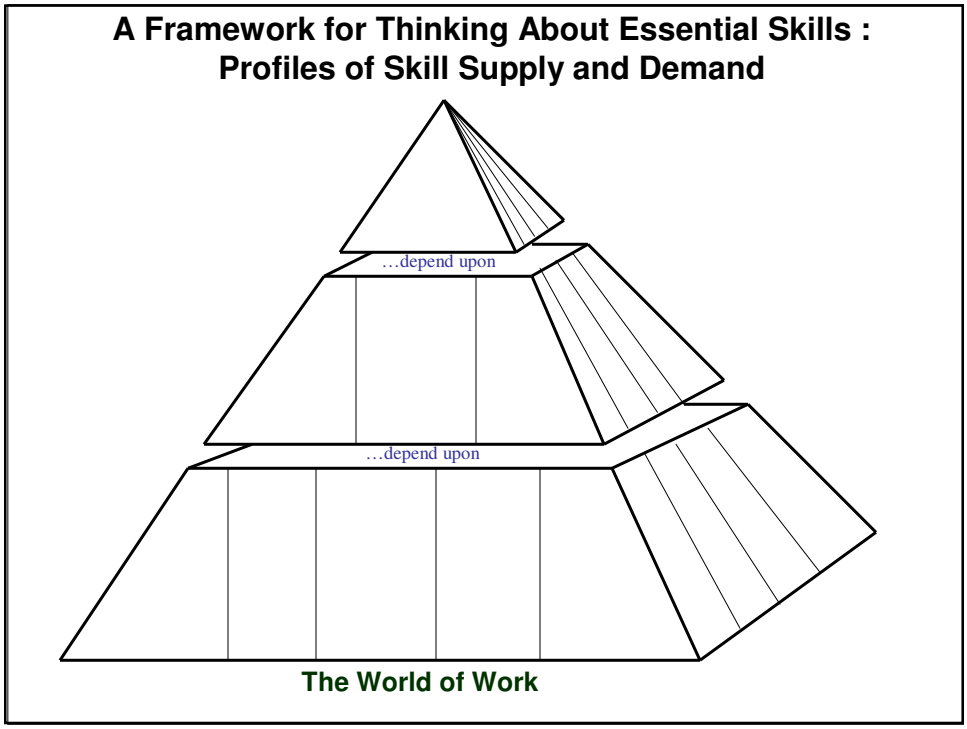
People are the common denominator of progress. So... no improvement is possible with unimproved people, and advance is certain when people are liberated and educated. It would be wrong to dismiss the importance of roads, railroads, power plants, mills, and the other familiar furniture of economic development.... But we are coming to realize... that there is a certain sterility in economic monuments that stand alone in a sea of illiteracy. Conquest of illiteracy comes first.
John Kenneth Galbraith, ***The Affluent Society (1958) US (Canadian-born) administrator & economist (1908 - 2006)***

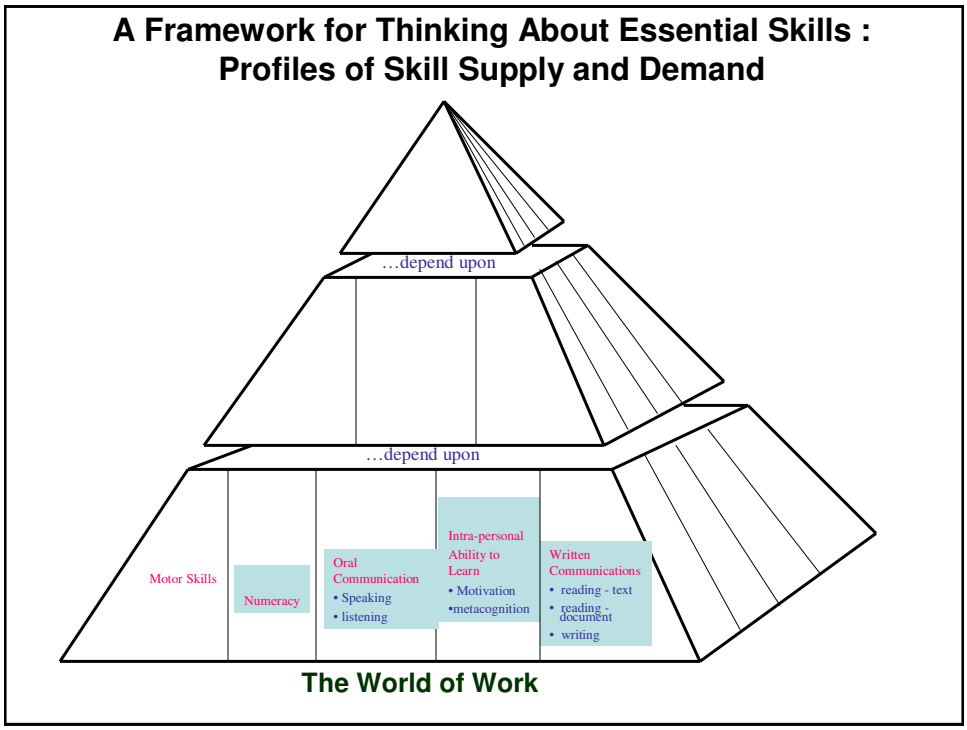
Why we care about skills and learning: Sources of policy interest

- concerns about skill barriers to economic growth, productivity growth and rates of technological innovation (GREED)
  - skill supply and demand balance
  - high end skills vs essential skills
- concerns about the role of skill in creating social inequity in economic outcomes (FAIRNESS)
- concerns about the demand for and efficiency and effectiveness of investments in public goods and services such as education and health (PRODUCTIVITY OF TAX INVESTMENTS)

What makes skill more important now: Key policy drivers

- Demographics: not enough kids
- globalization of markets for goods and services: huge opportunity
- globalization of markets for capital and technology: everyone has access to the same inputs a the same costs
- Multinationals and outsourcing: job loss is inevitable
- diffusion of information and communication technologies: increases productivity, amplifies skill-based inequalities
- Rising skill supply in the developing world: they are able to compete


A Framework for Thinking About Essential Skills :
Profiles of Skill Supply and Demand
…depend upon
…depend upon
The World of Work


A Framework for Thinking About Essential Skills :
Profiles of Skill Supply and Demand
…depend upon
…depend upon
Motor Skills
Numeracy
Oral Communication
• Speaking
• listening
Intra-personal Ability to Learn
• Motivation
•metacognition
Written Communications
• reading - text
• reading - document
• writing
The World of Work

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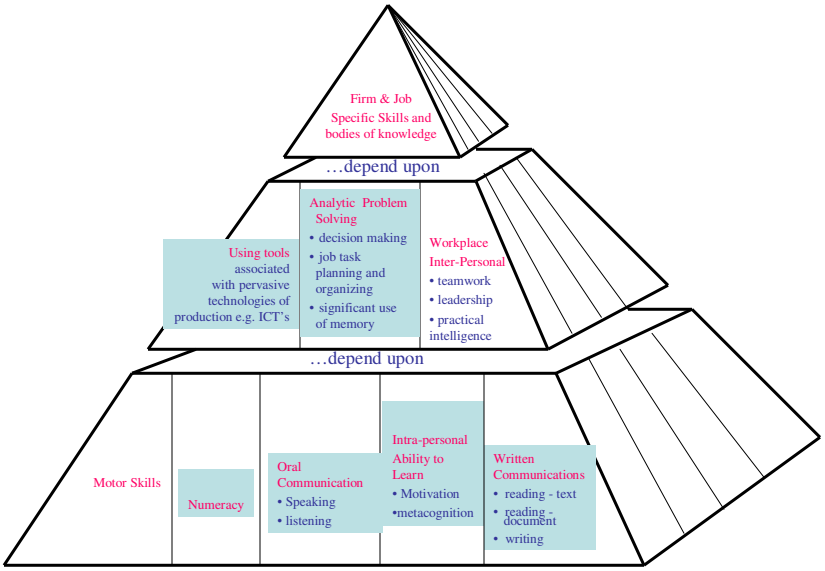

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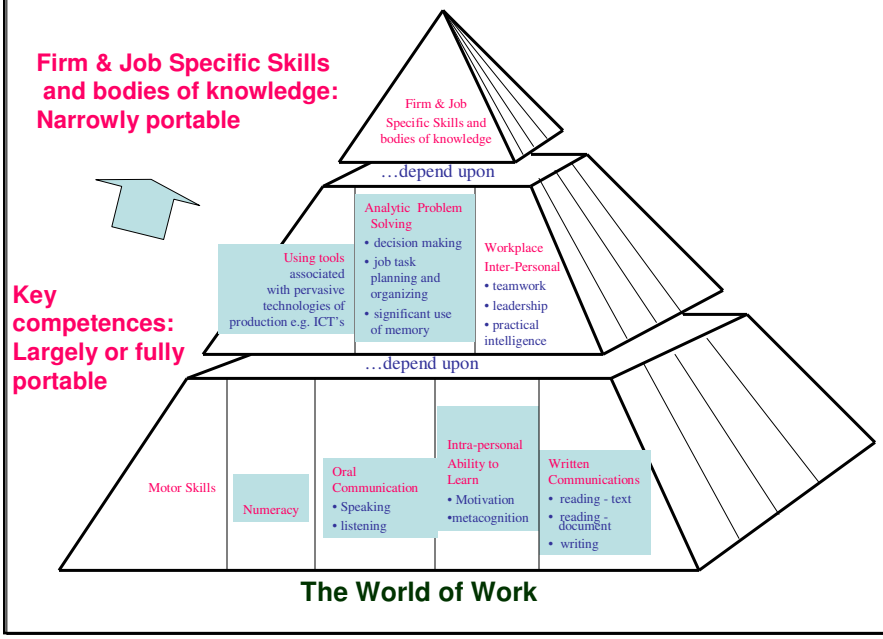

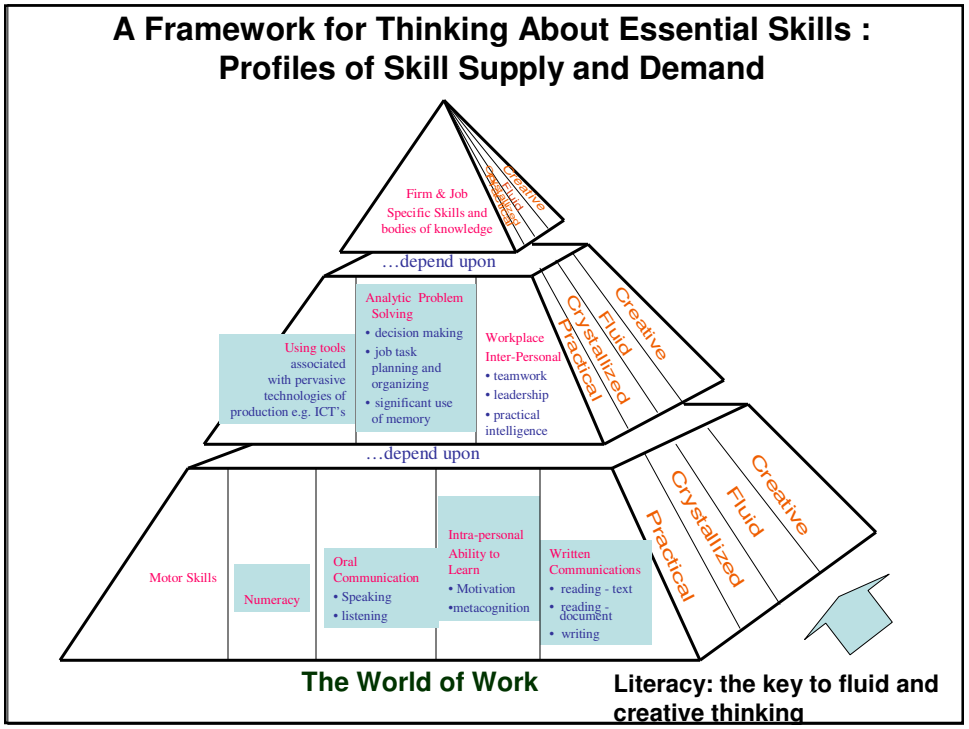
A Framework for Thinking About Essential Skills :
Profiles of Skill Supply and Demand
Firm & Job Specific Skills and bodies of knowledge
…depend upon
Analytic Problem Solving
• decision making
• job task planning and organizing
• significant use of memory
Using tools associated with pervasive technologies of production e.g. ICT's
Workplace Inter-Personal
• teamwork
• leadership
• practical intelligence
Creative
Fluid
Crystallized
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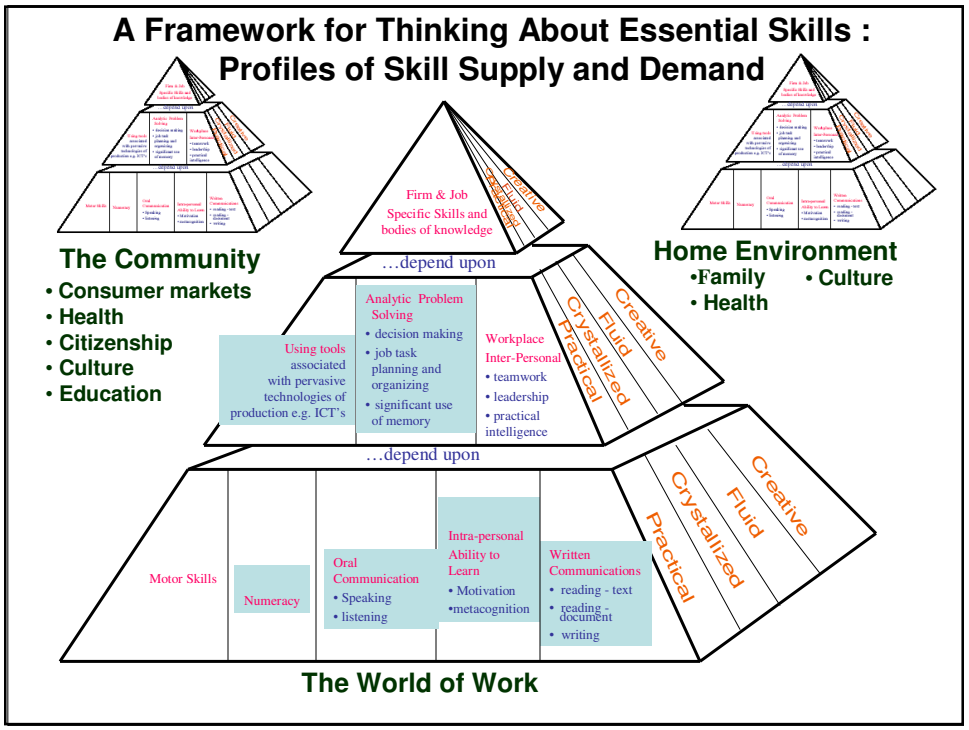
Literacy: the key to fluid and creative thinking


A Framework for Thinking About Essential Skills :
Profiles of Skill Supply and Demand
The Community
• Consumer markets
• Health
• Citizenship
• Culture
• Education
Home Environment
•Family
• Culture
• Health
Firm & Job Specific Skills and bodies of knowledge
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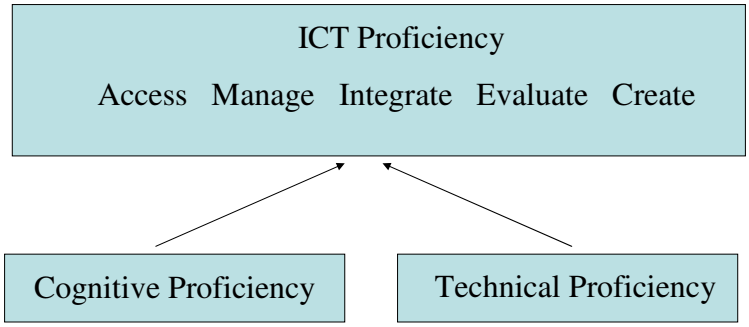
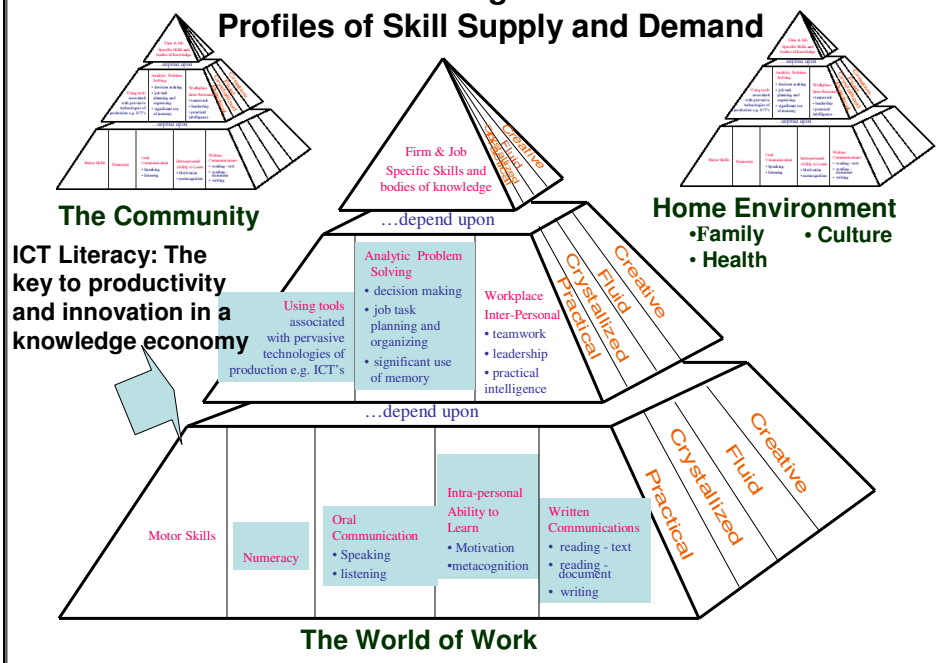
ICT Literacy: The key to productivity and innovation in a knowledge intense economy



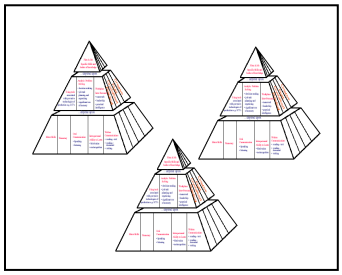
The acquisition and application of ICT literacy depends upon literacy skill

A Framework for Thinking About Essential Skills : Profiles of Skill Supply and Demand



Theoretical Framework: a "Markets" Model of Skill

Skill Demand



Markets for skill:
- Education
- Labour
- Health
- Social

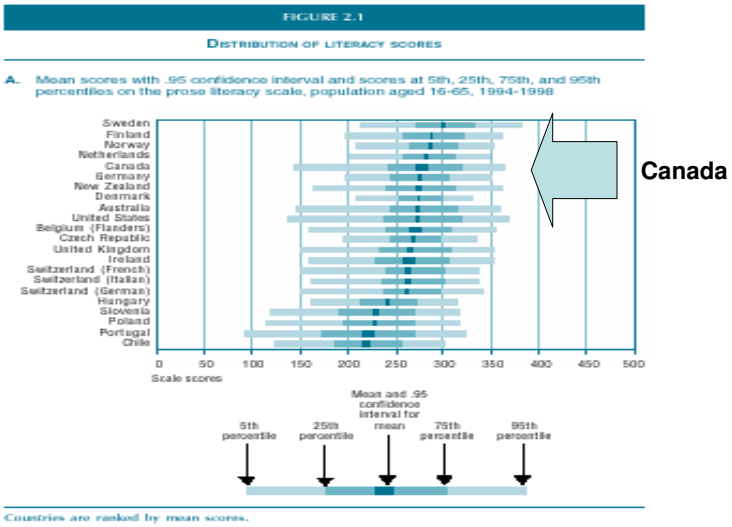
Skill Supply = skill stock + net skill flow from lifelong, life-wide learning

+ quality of early childhood experience
+ quantity of primary and secondary education
+ quantity and quality of tertiary
+ quantity and quality of adult learning (formal, non-formal, informal)
+/- immigration
+/- emmigration
- skill loss associated with insufficient demand
+/- social demand for skill
+/- economic demand for skill

Outcomes

Context	MICRO (Individuals)	MESO (Social Institutions)	MACRO (Systems)
• Economic			
• Social			
• Educational			
• Health			

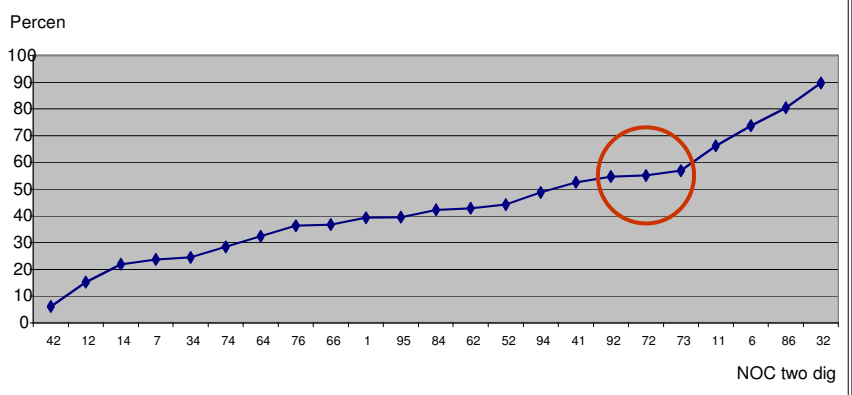
The stock of skill: Canada's average skill level is relatively high but we have a very wide range of skill…



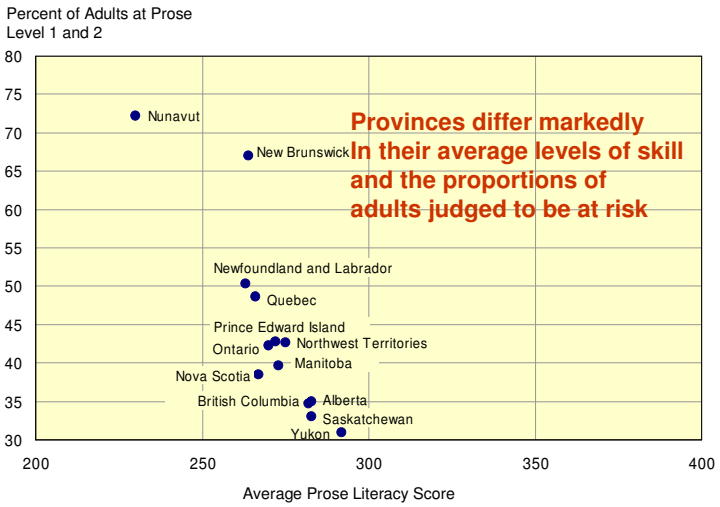
Canada

Prose literacy deficit by occupation

Percent of workers employed with literacy deficit by occupation groups, aged 16 to 65, 2003



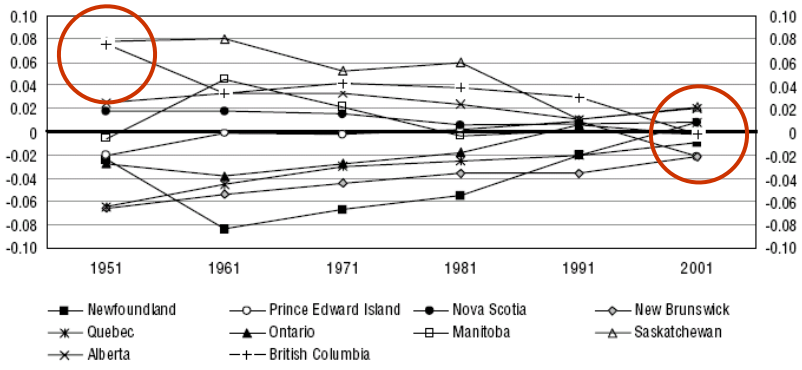
The Distribution of Prose Literacy Skill By Province and Territory



The scope for public policy to influence skill

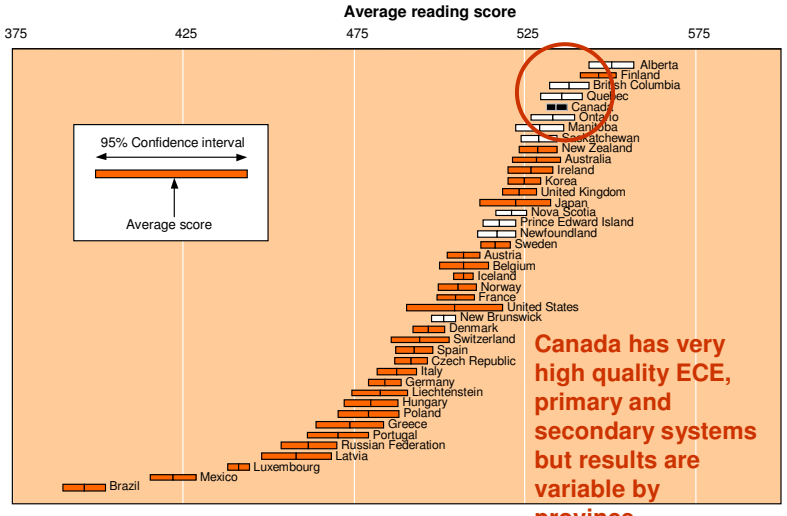
Figure 2

Average literacy scores of population aged between 17 and 25 (log of deviations from the mean)



The relative performance of school systems has been changing

Quality of skill flow from the initial education system: Canada rates near the top of the world in reading literacy



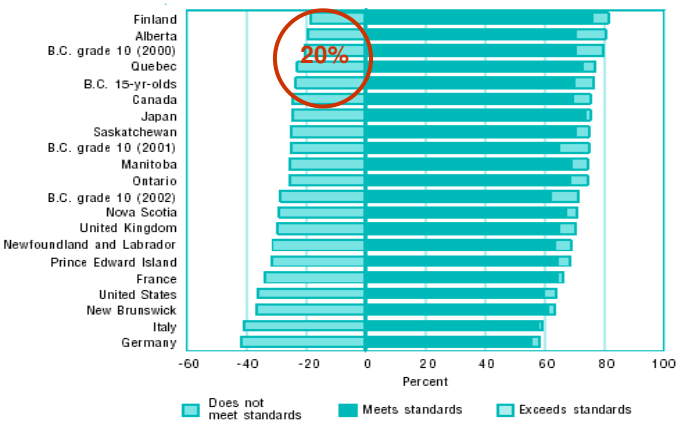
Canada has very high quality ECE, primary and secondary systems but results are variable by province

Source: Programme for International Student Assessment, 2000.

The quality of skill flow from the secondary system:

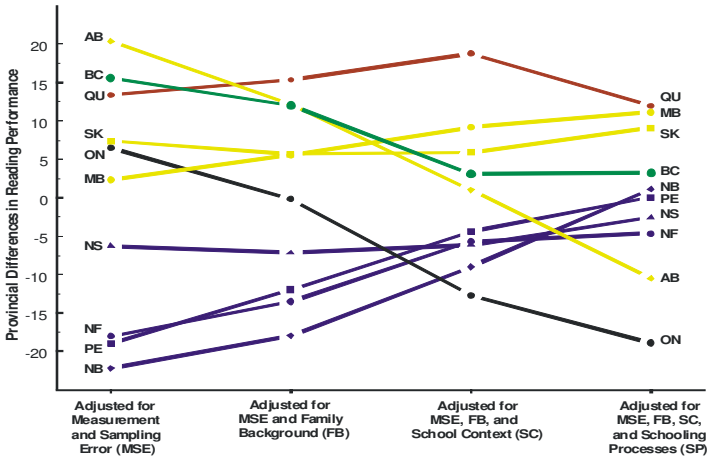
Despite high average performance significant proportions of 15 year olds fail to meet B.C.'s grade 10 performance standards even in the best performing provinces…

Percentage of 15-yr olds from various jurisdictions attaining B.C. grade 10 reading standards, 2000



1. All results shown here are for 15-year-olds except for B.C. grade 10 students who are, on average, 6 months older than B.C. 15 year olds.
Jurisdictions ordered by the percentage of students meeting or exceeding expectations.
Source: Table 6

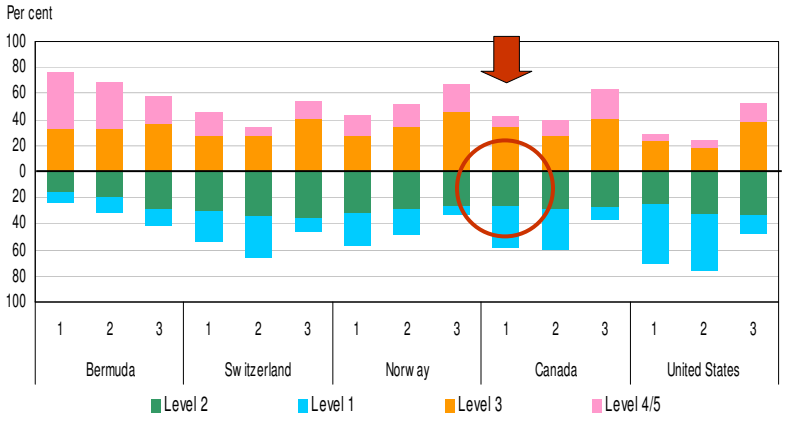
Relative Provincial Differences in Reading Performance: Raw and Adjusted



After adjustment for obvious differences several school systems are under-performing

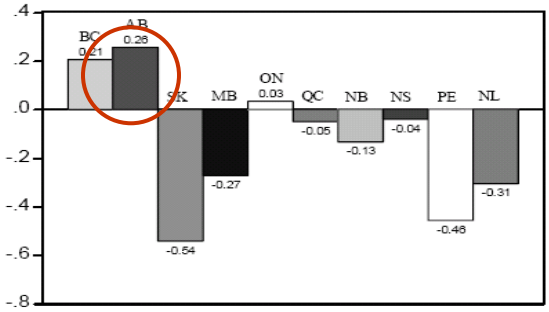
The quality of skill flow from immigration: Recent versus established immigrant status by skill level

More recent immigrants more skilled



The quality of skill flow from inter-provincial migration: Alberta is a big gainer

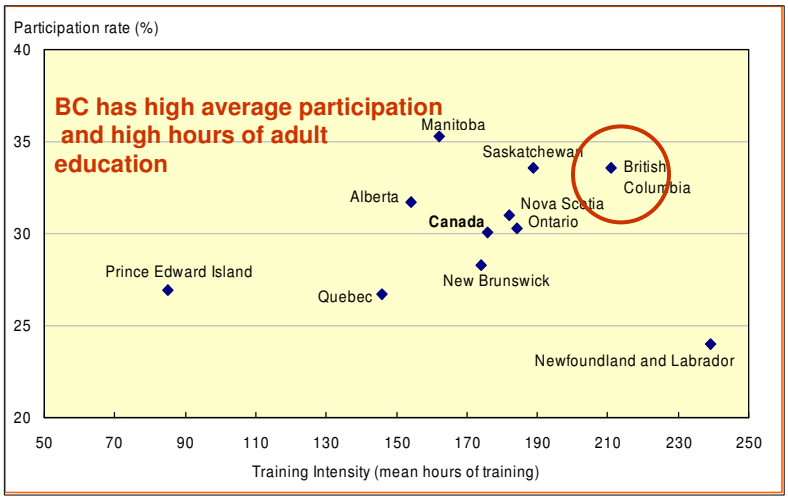
Figure 15. Stock of net skills gains from interprovincial migration, 10 provinces



Note: Computed by the authors from IALSS 2003. Stock of net skills gains as a proportion of the non-migrant skill stock. An interprovincial migrant is an individual who was interviewed in a different province from the one where the last year of high school was completed. Non-migrants were interviewed in the same province in which they were schooled.

The quality and quantity of skill flow from adult education:

Incidence and Intensity of Job-related Training, population aged 25 to 64, 2002[1]

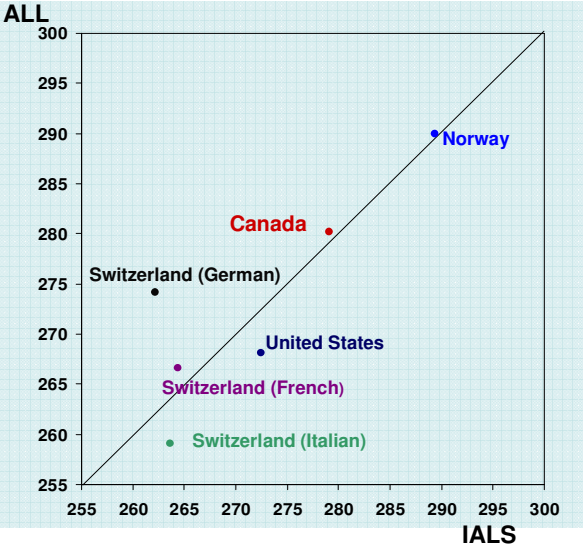


1 Incidence is measured as proportion of population aged 25 to 64 with job-related training in 2002. Intensity is measured in mean hours of training per participant.

International comparison

Skill Change: Three countries did not change their prose literacy performance

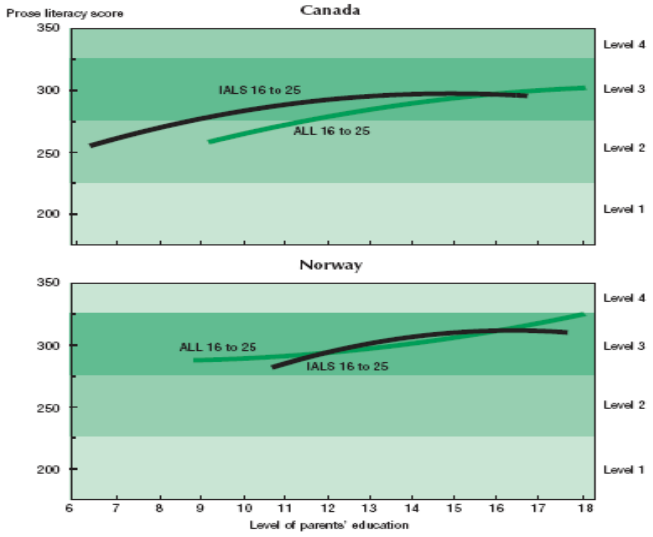
- Similar trend also observed for document literacy
- Decline in U.S. and Italian speaking Switzerland
- Improvement in German speaking Switzerland



Source: ALL, 2003; IALS, 1994-1998

Where skill loss is concentrated: Socio-economic gradients for three cohorts of adults

Relationship between respondent's prose literacy scores and parents' education in years, populations aged 16 to 25, 26 to 45 and 46 to 65, 2003



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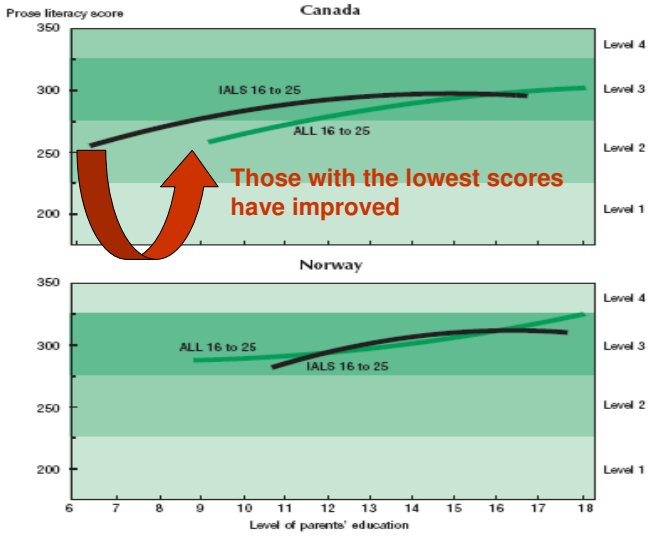

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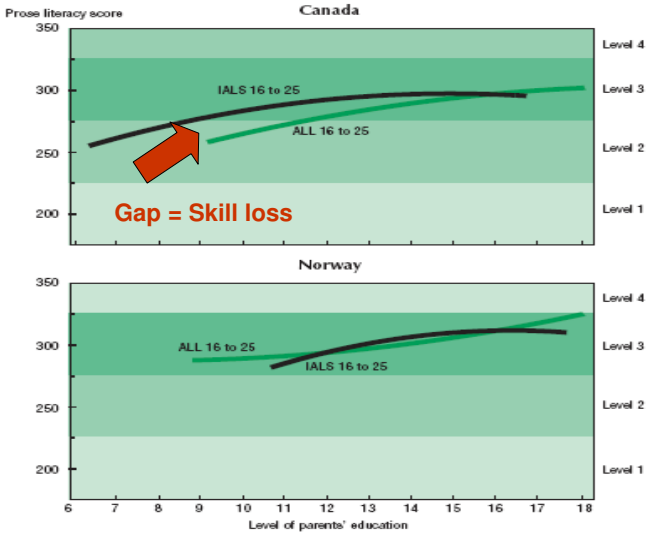
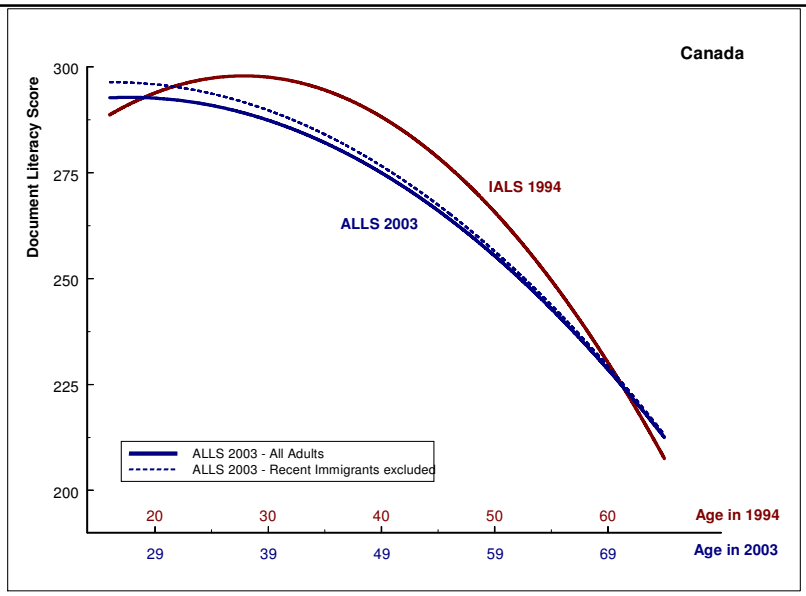
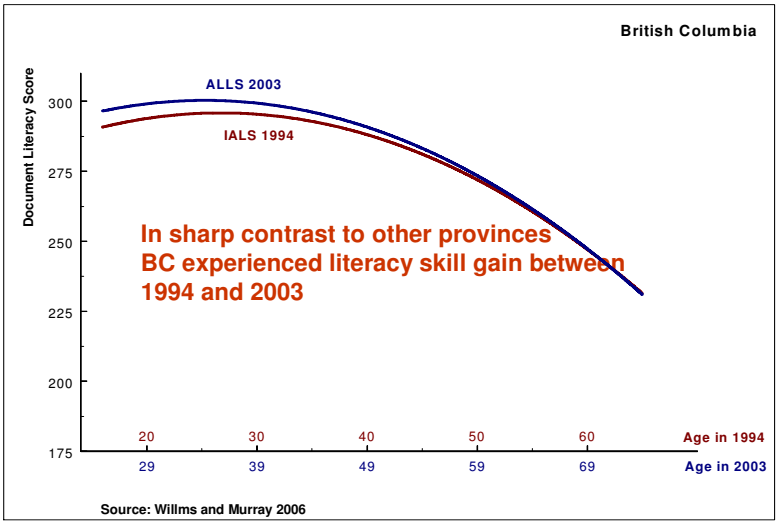




Skill loss in adult hood:



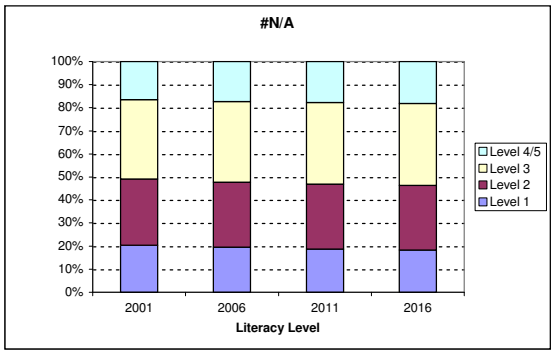
Latent Class	Print skills	Comprehension skills
A	Very limited	Limited
B	Limited	Limited
C	Limited	Adequate
D	Adequate	Adequate

Market segments in Levels 1 and 2: the need for a differentiated policy and program response

- **A1 Very limited print skills, limited comprehension skills, English mother tongue Remedial cost: $2925/person**
- **A2 Very limited print skills, limited comprehension skills, Non-English mother tongues Remedial cost: $3067/person**
- **B1 Limited print skills, limited comprehension skills, English mother tongue Remedial cost: $2682/person**
- **B2 Limited print skills, limited comprehension skills, Non-English mother tongues Remedial cost: $2824/person**
- **C1 Limited print skills, adequate comprehension skills Remedial cost: $341/person**
- **D1 Adequate print skills, adequate comprehension skills, unable to get to Level 3 Remedial cost: $229/person**

NATO Operational Business Case		
2002-2003		
Total costs 42 Unsuccessful Graduates		
Average costs	$4,500 per student	$189,000
Tuition	$750 per month	$31,500
ESL	$400 per week per student	$16,800
Total	**$35,400**	
Cost per successful graduation		**$8,450**

Looking forward: How the distribution of performance by level is likely to change 2001 - 2031



Group	Percent population growth 2001 to 2031	Predicted percentage increase in number of adults with prose literacy skills below Level 3 2001 to 2031	Predicted percentage increase in proportion of adults with prose literacy skills below Level 3 2001 to 2031
Canada	32	25	(2)
Demographic groups			
Youth aged 15 to 25	2	0.8	(1)
Seniors aged 66 +	35	88	(12)
Immigrants	77	61	(7)
Less than high school	(33)	(31)	2
Jurisdictions			
Newfoundland	(11)	(12)	(1)
PEI	15	4	(4)
Nova Scotia	6	2	(2)
New Brunswick	3	(2)	(3)
Quebec	13	7	(3)
Ontario	50	42	(2)
Manitoba	10	-	(5)
Saskatchewan	(5)	(11)	(4)
Alberta	48	40	(2)
British Columbia	39	37	-
Yukon	17	11	3
NWT	14	17	-
Nunavut	71	50	(5)
CMAOs			
Toronto	73	64	(2)
Montreal	27	20	(3)
Vancouver	64	64	-

Scott's policy prescription:

- **Heard of the guaranteed minimum wage? Why not a guaranteed minimum skill?**

Canadian employment levels for Level 1 adults could potentially rise as much as 16%.

Canadian workers at this level might work as much as .096 more months a year on average

Wage rates for the group could rise as much as $3.72 per hour

The prevalence of poor mental health for Level 1 adults could fall as much as 6.5%

The prevalence of poor health for the group could fall as much as 4.6%

- Canadian employment levels of these workers might rise as much as 4%.
- Canadian workers at this level might work as much as .06 less months a year on average
- Wage rates could rise as much as $1.73 per hour for these workers
- The prevalence of poor mental health could fall as much as .22% for these workers
- The prevalence of poor health could fall as much as .45% for these workers

Summary:

- Skills matter to our economic and social success and what we get for our tax $
- There is an urgency to act but who should pay and who needs to do what is complex
- The problem will not go away itself – the skill flows are of variable quality
- If we could fix the problem the net cost would be low due to the massive benefits

Additional Information:

- Learning a Living: First Results of the Adult Literacy and Life Skills Survey (www.statcan.ca)
- Literacy scores, human capital and growth across fourteen OECD countries (www.statcan.ca)
- Human capital and Canadian Provincial Standards of Living (www.statcan.ca) (forthcoming)
- The Adult Literacy and Life Skills Survey: New Frameworks for Assessment (www.statcan.ca)
- IALS and ALL data (www.statcan.ca)
- Information: T. Scott Murray dataangel@mac.com