Youth skills and employability: what a markets analysis reveals

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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.

What makes skill more important now: Key policy drivers

- Demographics: in the OECD not enough kids to alter the quality of the skill supply, situation in Asia mixed
- Globalization of markets for goods and services: huge opportunity for returns to scale
- Globalization of markets for capital and technology: everyone has access to the same inputs at the same costs so everyone can compete on price and quality
- Multinationals and outsourcing: job loss is inevitable for the OECD
- Diffusion of information and communication technologies: increases productivity, amplifies skill-based inequalities
- Rising global skill supply: systems that can generate skill can compete, skill becomes a much more important determinant of competitiveness
Why we care about skills:

• **Economic efficiency**: the impact of literacy upon long rates of GDP growth

• **Equity**: the impact of literacy upon individual health, labour market, social and educational outcomes

• **Tax efficiency**: the return on tax investments in education and health
Average skill level and growth are tightly linked at the international level:

Differences in average literacy level explain over 55% of long term differences in the growth of labour productivity and GDP.
Average skill level and growth are tightly linked at the sub-national level:

Our mean estimate of the macroeconomic return on one additional year of education, in terms of skills acquired, is 7.3 percent.
Sub-national skill disparity and income disparity in Canada:
One way in which firms compensate for workers with weak literacy skills is to adopt less productive work organizations, work processes and technologies of production:
Policy issues:

• The suspect efficiency of the education market: Products and services are not well matched to the needs of potential learners nor the economy

• The increased importance of basic skills to productivity growth: How well workers can adopt and apply the most productive work organizations and technologies

• The role of governments in funding remediation: Will individuals and firms adjust rapidly enough to avoid the worst economic penalties
A Framework for Thinking About Essential Skills: Profiles of Skill Supply and Demand
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The World of Work
A Framework for Thinking About Essential Skills: Profiles of Skill Supply and Demand

The World of Work

Using tools associated with pervasive technologies of production e.g. ICT's

Analytic Problem Solving
- decision making
- job task planning and organizing
- significant use of memory

Workplace Inter-Personal
- teamwork
- leadership
- practical intelligence

Motor Skills
Numeracy
Oral Communication
- Speaking
- listening
Intra-personal Ability to Learn
- Motivation
- metacognition
Written Communications
- reading - text
- reading - document
- writing

...depend upon

Firm & Job
Specific Skills and bodies of knowledge

...depend upon

Intra-personal
Ability to Learn
A Framework for Thinking About Essential Skills:
Profiles of Skill Supply and Demand

Key competences:
Largely or fully portable

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Numeracy
Oral Communication
• Speaking
• Listening
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Firm & Job Specific Skills and bodies of knowledge:
Narrowly portable

The World of Work
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Creative Fluid
Practical

Creative Crystallized

Creative Fluid
Crystallized

Creative Practical

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The World of Work

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

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The Community

Home Environment
- Family
- Health
- Culture
- Citizenship
- Education

The Community

...depend upon

The World of Work
ICT Literacy: The key to productivity and innovation in a knowledge intense economy

ICT Proficiency
Access   Manage   Integrate   Evaluate   Create

Cognitive Proficiency

Technical Proficiency

The acquisition and application of ICT literacy depends upon literacy skill
A Framework for Thinking About Essential Skills: Profiles of Skill Supply and Demand

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Home Environment
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The World of Work
Theoretical Framework: a “Markets” Model of Skill

Skill Demand

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

Outcomes

<table>
<thead>
<tr>
<th>Context</th>
<th>Micro</th>
<th>Meso</th>
<th>Macro</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Ind.)</td>
<td>(Inst.)</td>
<td>(Sys.)</td>
</tr>
<tr>
<td>Economic</td>
<td></td>
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<tr>
<td>Social</td>
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<td></td>
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<tr>
<td>Educational</td>
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<td></td>
<td></td>
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<tr>
<td>Health</td>
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</tbody>
</table>

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
The impact of skill on individual outcomes: labour market outcomes

The probabilities of unemployed adults aged 16 to 65 to exit unemployment over a 52 week period, by low (Levels 1 and 2) and medium to high (Levels 3 and 4/5) skills, document scale, 2003

The impact of skill on individual labour market outcomes
Earnings and literacy proficiency, controlling for education
and labour force experience

... literacy explains a significant fraction of wage variability in Canada,
but not in Sweden...

Countries are ranked by the magnitude of the effect parameter associated with
educational attainment

The impact of skill on individual labour market outcomes: Likelihood of being a high-intensity computer user by literacy skill levels

Adjusted odds ratios showing the likelihood of adults aged 16 to 65 of being high-intensity computer users, by prose literacy levels, 2003

Countries are ranked by the odds of those who score at Level 4/5.
The impact of skill on individual labour market outcomes: Likelihood of being a top income quartile earner by combined skill and user profiles

Adjusted odds ratios\(^1\) showing the likelihood of adults aged 16 to 65 of being a top income quartile earning, by combined literacy and computer user profiles, 2003

Countries are ranked by the odds of those in Group 4.

1. Odds estimates that are not statistically different from one at conventional levels of significance are reported as one in the figure. For the actual estimate and its corresponding significance, see Table 8.12 in the annex to this chapter.

The relationship of average health literacy to the prevalence of diabetes
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

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

[Graph showing the relationship between prose literacy scores and level of parents' education for Canada and Norway]
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

Those with the lowest scores have improved
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

Gap = Skill loss
Skill loss in Canada:

**IALS 1994**

**ALLS 2003**

**ALLS 2003 - Recent Immigrants excluded**

**ALLS 2003 - All Adults**

Document Literacy Score

Age in 1994

Age in 2003
Skill loss in Ontario:

[Graph showing the decline in document literacy score over age from 1994 to 2003 for Ontario.]
Skill loss in adult hood:

In sharp contrast to other provinces, BC experienced literacy skill gain between 1994 and 2003.

Source: Willms and Murray 2006
The transition from learning to read to reading to learn:

- Learning to read: Proficiency dominated by mechanics of reading
- Reading to learn: Proficiency dominated by cognitive strategies

Level 1 | Level 2 | Level 3 | Level 4 | Level 5
Average proportion correct scores on each component displayed separately for each latent class, ISRS, 2005.
Literacy market segments in Canada:

<table>
<thead>
<tr>
<th>Latent class</th>
<th>Print skills</th>
<th>Comprehension skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A1</td>
<td>Very limited</td>
<td>Limited</td>
</tr>
<tr>
<td>Class A2</td>
<td>Very limited</td>
<td>Limited</td>
</tr>
<tr>
<td>Class B1</td>
<td>Limited</td>
<td>Limited</td>
</tr>
<tr>
<td>Class B2</td>
<td>Limited</td>
<td>Limited</td>
</tr>
<tr>
<td>Class C</td>
<td>Limited</td>
<td>Adequate</td>
</tr>
<tr>
<td>Class D</td>
<td>Adequate</td>
<td>Adequate</td>
</tr>
<tr>
<td>Class E</td>
<td>Adequate</td>
<td>Adequate</td>
</tr>
<tr>
<td>Class F</td>
<td>Adequate</td>
<td>Adequate</td>
</tr>
</tbody>
</table>
Figure 5.1A Estimated Size of English Market segments, Total, 2006
The efficiency of the market for literacy: Proportion of total supply used (in points)
The efficiency of the market for literacy: Balance of total supply and total demand (in points)
The efficiency of the market for literacy: Literacy skill surpluses and shortages by level of the job (in points)

Figure 4.3B Aggregate literacy skill surplus and shortage, peak demand, all occupations, Total, 2006
Absolute and relative risks of being in literacy shortage by occupation, Canada 2006:

Figure 4.7 Number of workers with literacy skills below the required level, selected occupations, Total, 2006

- Wholesale, Technical, Insurance, Real Estate Sales Specialists, and Retail, Wholesale and Grain Buyers
- Technical Occupations Related to Natural and Applied Sciences
- Transportation Equipment Operators and Related Workers, Excluding Labourers
- Professional Occupations in Natural and Applied Sciences
- Sales & Service Occupations N.E.C.
- Clerical Occupations

Figure 4.8 Proportion of workers with literacy skills below the required level, selected occupations, Total, 2006

- Supervisors in Manufacturing
- Teachers and Professors
- Childcare and Home Support Workers
- Contractors and Supervisors in Trades and Transportation
- Retail Salespersons and Sales Clerks
- Nurse Supervisors and Registered Nurses
Occupations with the highest relative risks of being in shortage:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Risk (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Supervisors and Registered Nurses</td>
<td>81%</td>
</tr>
<tr>
<td>Stationary Engineers, Power Station Operators and Electrical Trades and</td>
<td>70%</td>
</tr>
<tr>
<td>Telecommunications Occupations</td>
<td></td>
</tr>
<tr>
<td>Retail Salespersons and Sales Clerks</td>
<td>69%</td>
</tr>
<tr>
<td>Professional Occupations in Business and Finance</td>
<td>65%</td>
</tr>
<tr>
<td>Contractors and Supervisors in Trades and Transportation</td>
<td>65%</td>
</tr>
<tr>
<td>Other Trades N.E.C.</td>
<td>64%</td>
</tr>
<tr>
<td>Childcare and Home Support Workers</td>
<td>63%</td>
</tr>
<tr>
<td>Assemblers in Manufacturing</td>
<td>60%</td>
</tr>
<tr>
<td>Teachers and Professors</td>
<td>56%</td>
</tr>
<tr>
<td>Technical and Related Occupations in Health</td>
<td>55%</td>
</tr>
<tr>
<td>Supervisors in Manufacturing</td>
<td>54%</td>
</tr>
<tr>
<td>Occupations in Protective Services</td>
<td>54%</td>
</tr>
<tr>
<td>Wholesale, Technical, Insurance, Real Estate Sales Specialists, and Retail, Wholesale and Grain Buyers</td>
<td>52%</td>
</tr>
<tr>
<td>Professional Occupations in Art and Culture</td>
<td>52%</td>
</tr>
<tr>
<td>Professional Occupations in Health</td>
<td>51%</td>
</tr>
<tr>
<td>Transportation Equipment Operators and Related Workers, Excluding Labourers</td>
<td>50%</td>
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</table>
Absolute and relative risks of being in literacy shortage by occupation, Canada 2006:

Figure 4.8 Number of workers with literacy skills below the required level by employment, selected occupations, Total, 2006
Policy implications:
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• A need to pay more attention to educational quality and equity
• A need to balance supply-side, demand-side and market efficiency measures
• A need for assessment of educational quality for accountability purposes:
  – Through comparison to enable What is-what could be-what should be
So what to do:

• Supply-side:
  – Manage the quality of secondary output with:
    • ECE, primary and secondary **SYSTEM** assessment systems
    • Primary and secondary **INDIVIDUAL** assessment systems
  – Manage quality of adult education systems with:
    • Adult **SYSTEM** assessment systems
    • Adult **INDIVIDUAL** assessment systems
So what to do:

• Demand-side measures:
  – Ensure active education policy in passive income support and employment creation
  – Create incentives for firms to invest in knowledge and skill intense production technologies and work organizations
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