

Literacy in the workplace

Karen Kelly, Gilles Montigny, Tim O'Neill and Andrew Sharpe

The following article is based on two chapters published in *Adult literacy in Canada: results of a national study*, recently released by Statistics Canada. "Reading skills of adult Canadians by selected characteristics" was written by Gilles Montigny and Karen Kelly. "Functional illiteracy: economic costs and labour market implications" was written by Tim O'Neill and Andrew Sharpe.⁽¹⁾

Globalization, computerization and automation are changing the workplace in ways not generally anticipated 10 or 15 years ago. Indeed, change is occurring so quickly that it is arguable whether anyone can successfully predict what "going to work" will be like by the end of the decade. However, we do know that some occupations and industries will grow rapidly, while others will decline equally rapidly. The ability of the labour force to adapt to constant flux is of paramount importance for the future prosperity of workers, industry and the Canadian economy.

This adaptability presumes that workers have the skills needed to obtain and apply new knowledge, but over one-third of Canadian adults experience at least some difficulty with reading, writing and numeracy tasks common in everyday life. Many of these people work, and the impoverishment of their literacy skills doubtlessly imposes limitations on their employment opportunities. It also imposes costs on the organizations that employ them such as inefficiency, lower productivity and accidents.

The stakes and the stakeholders

The economic costs of inadequate workplace literacy affect individuals, firms, and society. Individuals suffer below-average incomes, above-average unemployment and reduced labour market mobility, both occupational and geographic. In addition, their diminished capacity for job training and retraining dooms them to fall further behind in the competition for gainful employment.⁽²⁾

Firms employing such workers are also affected. In a recent survey of Canadian businesses with 50 or more employees, 70% of the respondents believed that some disruptions in their operations were

attributable to the inadequate literacy skills of their employees, including lost productivity, errors in inputs and processes, reduced product quality and problems in job reassignment ([Deslauriers](#)). One estimate of the annual cost to Canadian businesses from lost productivity due to poor literacy was \$4 billion. ⁽³⁾ Even if this figure is not strictly accurate, it indicates the magnitude of the literacy problem in the workplace.

Society at large suffers the effects of inadequate workplace literacy through lower productivity, higher prices arising from increased production costs, and higher levels of government-provided income assistance to those unemployed or underemployed because of deficient skills.

Workforce literacy skills exceed general population's

An estimated 63% of the general population possess literacy skills that enable them to deal with most everyday reading material (level 4), compared with 69% of the employed labour force (see [Data source and definitions](#)). That the reading skills of the labour force are higher is partly because most of the older population is not in the labour force. ⁽⁴⁾ The reading skills of part-time and full-time workers do not differ significantly; in both cases, one in ten had level 1 or 2 skills, while another two in ten had level 3 proficiency, which enabled them to deal with clearly written documents or simple texts ([Table 1](#)).



Table 1 Reading skill levels of persons aged 16-69 by labour market activity, 1989.*

Source: *Survey of Literacy Skills Used in Daily Activities*

* *Excludes persons who reported having no skills in either of Canada's official languages.*

While the literacy profiles of full-time and part-time workers are almost identical, larger differences emerge when work intensity is considered. Some 70% of full-year workers possess level 4 literacy, but only 65% of part-year workers exhibit these skills.

Another dimension of work intensity that reveals disparities is the number of weeks of unemployment. Of the 14% of the adult population that was unemployed during the year, the majority (over 60%) were out of work for less than 26 weeks. Over two-thirds of those who were unemployed for this period operate at level 4 proficiency, compared with less than half of those with a longer period of unemployment. One in three of the long-term unemployed have level 3 skills and one in five possess level 1 or 2 skills.

Literacy lowest in primary industries and related occupations

The literacy requirements of jobs vary over time as technologies, production processes and organizational structures of industries evolve. As such, literacy skills are indicative of specific working conditions, and allow workers to undertake training or to acquire new knowledge on the job. Work environment probably also plays an important role in the evolution of workers' literacy skills. In industries where most communication is in written form, workers are likely to have high reading skill profiles, first because such an industry would select new employees based on the literacy abilities of job applicants, and second because the demands of the job contribute to the retention of those skills. In industries that do not rely heavily on written communication, the opposite is likely true, especially for workers in semi-skilled or unskilled occupations.

The proposition that the work environment tends to reinforce literacy skills is supported by observations of the reading abilities of workers in various industries. ⁽⁵⁾ In general, workers in service industries, which are heavily information-oriented, have higher literacy profiles. More than 70% of workers in industries such as community services and public administration have the level 4 skills sufficient to meet everyday demands ([Table 2](#)).



Table 2 **Reading skill levels of persons aged 16-69 by industry, 1989.***

Source: Survey of Literacy Skills Used in Daily Activities

* *Excludes persons who reported having no skills in either of Canada's official languages.*

On the other hand, only half the workers in agriculture and other primary industries (forestry, mining, fishing and trapping) exhibit level 4 proficiency, and more than one in five have level 1 or 2 abilities. High percentages of workers with limited skills are also found in manufacturing, personal services and construction, although this phenomenon is explained in part by the large proportion of immigrant workers in these industries ([Badets and McLaughlin](#)).

A large percentage - over one-quarter - of the workforce in these same industries has level 3 skills. (The proportion is even higher in agriculture, at 31%.) Such figures must give rise to concern because these industries are experiencing profound and rapid change.

Many occupations are closely associated with specific industries, for example, farming with agriculture, health-related jobs with community services, and so on. Therefore, the literacy skills for these occupations should be similar to the profiles of the industries to which they are linked. Farming and other occupations in the primary sector, as well as product fabricating (that is, manufacturing jobs), do indeed

show similar reading skill distributions: less than half the workers in these occupations are classified as proficient at level 4 ([Table 3](#)).



Table 3 **Reading skill levels of persons aged 16-69 by occupation, 1989.***

Source: *Survey of Literacy Skills Used in Daily Activities*

* *Excludes persons who reported having no skills in either of Canada's official languages.*

Labour market implications of poor literacy skills

Canadians lacking adequate literacy skills have always been at a disadvantage in the labour market. In the 1980s, however, their position deteriorated even further. Most industries and occupations which in the past had employed many poorly educated workers experienced little growth in employment, and in some cases, experienced significant declines. In addition, within those industries traditionally employing a high proportion of people with incomplete formal education, the occupation mix shifted to the detriment of those workers.

Reduced to fairly simple terms, the Survey of Literacy Skills Used in Daily Activities (LSUDA) identified two levels of literacy skills, which taken together affect one-third of the adult population in Canada: a limited ability to use printed material of any kind (levels 1 and 2), and the ability to use only non-complex materials (level 3). These difficulties have economic implications not only for the individuals concerned, but also for their employers and society at large. To track over time the labour market performance of those with inadequate literacy skills, time series data on literacy levels and labour market variables are needed, but the LSUDA results are available only for 1989. However, since the survey revealed such a strong correlation between poor literacy skills and non-completion of high school - and especially non-completion of Grade 9 - educational attainment data from the Labour Force Survey will serve as a proxy for literacy skills in the analysis that follows. [\(6\)](#)

Labour market position deteriorating for less-educated workers

Workers with poor literacy skills tend to have significantly higher unemployment rates, lower levels of labour force participation and lower employment income than other workers. More importantly, the gap between these workers and the overall population grew in the 1980s, and it probably will continue to do so in the coming years.

In 1990, the unemployment rate for those with less than nine years of schooling was 12.5%, or just over

1.5 times the overall rate of 8%. In 1981, it had been only 1.2 times greater. The 1980s thus saw a marked increase in the relative unemployment rate of adults without a Grade 9 education, especially among women and workers under 45.

Not only is their unemployment rate higher, but they are also less likely to be in the labour force in the first place. In 1990, their participation rate was 36%, compared with 67% for the overall population. This marks a considerable fall in their position; in 1981, 44% of adults without Grade 9 schooling were in the labour force, compared with 65% of the overall population. This development further underlines the increasingly difficult labour market situation faced by those with limited literacy skills.

Among poorly educated working Canadians, employment incomes are well below average. Census data for 1985 show that men with less than a Grade 9 education earned 80% of the average male employment income, while women with similar educational attainment earned 75%. In 1980, the proportions were 84% and 79% respectively. Given their falling participation rate and rising unemployment rate, the employment income of these workers probably continued to deteriorate in the latter half of the 1980s.

Adults with an incomplete formal education are also much less likely to move in search of economic opportunities. In 1986, their inter-provincial migration rate was 0.2%, or one-quarter the overall rate of 0.8%. Because of their lack of literacy skills, they are less able to obtain information about jobs that are available in other provinces; and they might have less of the self-confidence needed to uproot themselves from familiar surroundings.



Chart **Average annual employment growth rate from 1981 to 1989, by industry.**

Source: Labour Force Survey

Changing labour market conditions displacing those without formal schooling

The deteriorating labour market situation of workers without Grade 9 qualifications reflects changes in underlying supply and demand conditions in the 1980s. Demand for the types of skills they provide has declined steeply, while demand for the types of skills provided by the better educated has increased. This structural shift in labour demand can be gauged by employment trends at the industry and occupation level.

In the 1980s, industries such as finance, insurance and real estate, community services, and business services - which demand high level reading skills from their workforces - recorded very strong

employment growth. On the other hand, sectors such as manufacturing, agriculture and non-agricultural primary industries - with a high proportion of poorly educated workers - experienced stagnant or declining employment. There were certain exceptions to this general trend; for instance, employment growth was relatively strong in personal services and construction, two industries with above average proportions of workers with less than a Grade 9 education.

The trends observed in employment growth by industry in the 1980s have also been evident for occupations. White-collar occupations, such as managerial, professional, clerical and sales, experienced positive employment growth; meanwhile, blue-collar jobs like primary occupations, product fabricating and processing and machining, which have a high proportion of workers with poor literacy skills, recorded little if any net employment growth. Indeed, two-thirds of net employment growth between 1981 and 1989 was in managerial and professional occupations, the category with the lowest proportion of persons with poor literacy skills. Again, there are two exceptions to this overall trend: employment growth was near average in service and construction occupations, and both have a high proportion of workers without Grade 9 schooling.

The decreased importance of employment in goods-producing industries and blue-collar occupations, and the increased importance of employment in service-producing industries and white-collar occupations, reflect structural shifts in productivity growth and changing skills requirements. Indeed, almost all net job creation in the 1980s was in the service sector. Equally, technical change has resulted in an overall upgrading of the skill requirements for most blue-collar jobs. Workers are increasingly required to read manuals, perform numerical calculations, operate sophisticated equipment, and use information technologies.



Chart **Average annual employment growth rate from 1981 to 1989, by occupation.**

Source: Labour Force Survey

Conclusion

Functional literacy in the workplace - the absence of difficulties in on-the-job application of reading and writing skills - is a moving target because of the nature of the skills required to perform effectively. As job skills become more sophisticated and technically complex, an objective that was appropriate 10 or 15 years ago may no longer be acceptable. This also implies that the costs of not increasing the proportion of the workforce with strong literacy skills will rise over time. Improving literacy skills is therefore a major challenge facing Canadian society in the 1990s.

Self-perception of literacy skills

If people are to improve their literacy skills, they must first recognize that their skills are inadequate, otherwise nothing will be done. Unfortunately, the majority of limited readers (57% at level 1 and 82% at level 2) claim to be satisfied with their literacy skills. The fact that fewer than one in ten adults at level 3 are dissatisfied with their skills may be less cause for concern. (This is arguable because as the general level of literacy required rises, people who now have some difficulty reading unfamiliar material will fall even further behind.) Interestingly, a considerably larger proportion of immigrants than Canadian-born adults are dissatisfied with their skills.

Almost all workers (98%) describe their skills as adequate for their current job. Nevertheless, 7% of those currently working feel that their job opportunities are limited by their present literacy skills, and 21% of those looking for work believe they are handicapped by poor skills.

Of the approximately 1.2 million adults who believe that their skills are inadequate, only 9% are taking training to improve their performance, although a further 52% allow that they might enrol some time in the future. Enrolment in literacy programs has traditionally been low, and the results reported above suggest that motivating Canadians to register for them may continue to pose a challenge.

Data source and definitions

The Survey of Literacy Skills Used in Daily Activities (LSUDA) was conducted in October 1989 using a sample of approximately 9,500 respondents aged 16 to 69, pre-selected from the monthly Labour Force Survey. The main test involved a series of tasks designed to assess an individual's capacity to deal with reading, writing and numeracy activities commonly encountered in daily life. For more information about the LSUDA methodology, as well as a review of its general findings, see Montigny and Jones.

Literacy skills

The LSUDA identified four levels of reading ability:

Level 1: has difficulty dealing with any printed materials.

Level 2: can use printed materials for limited purposes such as finding a familiar word in a simple text.

Level 3: can use material that is simple, clearly presented and not too complex.

Level 4: can meet most everyday reading demands.

Although literacy encompasses reading, writing and numeracy skills, reading and numeracy skills are so interdependent, and the reasons for literacy competence so closely linked to educational attainment, that reading skills alone are used as a proxy for general literacy.

Labour force status

Almost four in five adult Canadians, or 14 million, were in the labour force at some point during the 12 months preceding the LSUDA survey. The labour force comprises the:

Employed: those who reported at least one week of work between November 1988 and October 1989.

Unemployed: those who reported at least one week of unemployment; that is, they were without work, looking for work and available for work.

These categories are not mutually exclusive, meaning that it is possible that one person was both employed and unemployed at some time during the survey reference period, and so is counted in each of the two universes.

Notes

Note 1

A. Sharpe's views do not necessarily reflect those of the Board of Directors of the Canadian Labour Market and Productivity Centre.

Note 2

Drouin notes that the pace of technological change is drastically reducing the period in which an individual's workplace skills are usable. She contends that specialized skills become obsolete within 3 to 5 years of their attainment, compared with 7 to 14 years just a decade ago. Technological change, which is a challenge to most people in the workforce, can be disastrous for those who are severely handicapped in trying to upgrade and update their skills.

Note 3

See [Canadian Business Task Force on Literacy](#), 1988.

Note 4

Literacy skills among older Canadians (age 55 to 69) are markedly lower than the national average. Less than 40% read with full proficiency (level 4), compared with 63% of the general adult population.

Note 5

Industry and occupation information was extracted from the April 1989 Labour Force Survey file, which was used to select the LSUDA sample. The information refers to the job of the respondent during the survey's reference week. For those not working that week, the information refers to the most recent job held in the previous five years.

Note 6

Fully 78% of those with no school or only elementary school education do not have the reading skills necessary to meet most everyday reading demands (Levels 1, 2 and 3), compared with only 34% of Canadians with higher levels of educational attainment. Those with no schooling or only elementary education represent 29% of Canadians who have difficulty dealing with any printed materials (level 1), but only 9% of the Canadian population aged 16 to 69. This strong positive relationship between formal educational attainment and literacy levels is also found, although to a slightly lesser degree, for numeracy levels.

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Author

Karen Kelly and Gilles Montigny are with the Special Surveys Group of Statistics Canada. Tim O'Neill is the president of the Atlantic Provinces Economic Council. Andrew Sharpe is head of research at the Canadian Labour Market and Productivity Centre.

Source

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Table 1

Reading skill levels of persons aged 16-69 by labour market activity, 1989*

	All levels	Level 1	Level 2	Level 3	Level 4
	'000	%			
Total**	17,705	5	10	22	63
Employed	14,094	3	7	21	69
Full time	11,532	3	7	21	69
Part time	2,563	--	8	22	69
Full year	11,002	3	7	20	70
Part year	3,048	--	9	23	65
Unemployed	2,490	4	9	27	60
26 weeks or more	969	8	12	33	47
Less than 26 weeks	1,522	--	8	23	67

Source: Survey of Literacy Skills Used in Daily Activities

** Excludes persons who reported having no skills in either of Canada's official languages.*

*** See "Data source and definitions" for definitions of labour force terminology.*

Table 2

Reading skill levels of persons aged 16-69 by industry, 1989*

	All levels	Levels 1 and 2	Level 3	Level 4
	'000	%		
All industries	15,315	11	21	67
Agriculture	487	21	31	48
Other primary industries	374	21	29	50
Manufacturing				
Durable goods	1,299	14	26	61
Non-durable goods	1,304	18	27	56
Construction	745	15	27	58
Transportation, communication and other utilities	1,090	8	19	73
Trade				
Wholesale	640	8	18	74
Retail	2,097	10	26	64
Finance, insurance and real estate	761	--	15	81
Service industries				
Community services	2,677	9	14	76
Business services and miscellaneous services	1,240	9	17	74
Personal services	1,437	17	26	57
Public administration	1,164	6	16	78

Source: Survey of Literacy Skills Used in Daily Activities, 1989

** Excludes persons who reported having no skills in either of Canada's official languages.*

Table 3

Reading skill levels of persons aged 16-69 by occupation, 1989*

	All levels	Levels 1 and 2	Level 3	Level 4
	'000	%		
All occupations	15,315	11	21	67
Managerial and administrative	1,823	--	12	85
Natural sciences, engineering and social sciences	913	--	10	86
Teaching	693	--	--	92
Health	728	10	14	76
Clerical	2,584	4	20	75
Sales	1,481	7	24	69
Service	2,329	21	27	52
Farming and other primary	692	21	33	46
Processing and machining	967	18	30	52
Product fabricating	1,094	23	28	49
Construction	749	17	29	54
Other	1,263	13	22	65

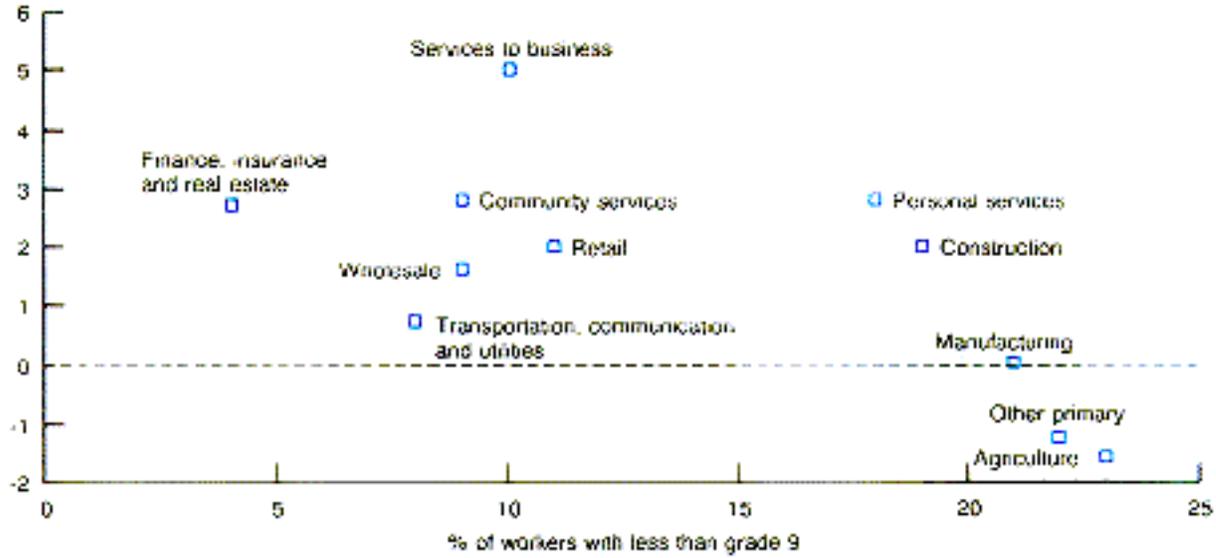
Source: Survey of Literacy Skills Used in Daily Activities, 1989

** Excludes persons who reported having no skills in either of Canada's official languages.*

Average annual employment growth rate from 1981 to 1989, by industry

Industries with better educated work forces had higher employment growth.

Average growth rate

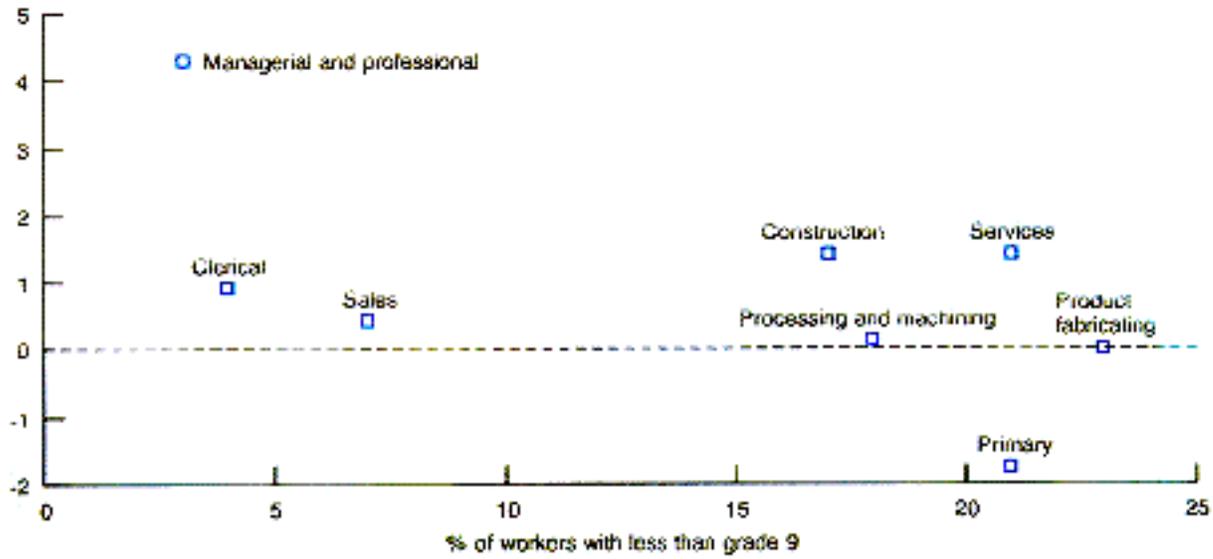


Source: Labour Force Survey

Average annual employment growth rate from 1981 to 1989, by occupation

Occupations that traditionally require less education declined or grew marginally.

Average growth rate



Source: Labour Force Survey