

The Case for Literacy in Alberta

Life is hard when you can't read



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Acknowledgements

Sincere thanks to Calgary Reads and The Rotary Club of Calgary for their support for the writing of this paper; to those who reviewed and edited it and thereby strengthened its key messages; and to the people who contributed their stories and helped the many facets of literacy come to life on its pages.

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“Anna ... practices her letters on the thousand blank pages of her mind. Each sign signifies a sound, and to link sounds is to form words, and to link words is to construct worlds.”

— Anthony Doerr, *Cloud Cuckoo Land*. p. 49

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Literacy is the learning to learn skill

45%

Almost half of working-age Albertans do not have the literacy skills required to perform most jobs in today's economy reliably and consistently.

1 in 4

One in four Canadian students reported that reading is a waste of time, and almost half read only when they must.

The demand for literacy skills in the workplace continues to rise as individuals face new technologies, new work processes, more advanced machinery, changes to regulations and new co-workers, all of which demand good or better levels of literacy. Workers must be able to understand what they have read and then apply that understanding to solve *new* problems.

Unfortunately, almost half of working-age Albertans do not have the literacy skills required to perform most jobs in today's economy reliably and consistently.¹ They are even less prepared for the jobs of tomorrow.

Workers with low literacy levels, on average, work less productively, increase the need for do-overs, are involved in more workplace accidents, have poorer health and are more likely to be absent and are less adaptable to change.² Research has shown that a one per cent rise in average literacy skills increases productivity by five per cent and GDP by three per cent – about \$60 billion.³

Literacy is the learning to learn skill. First we learn to read; then we read to learn. International studies of adult skills measure literacy based on an individual's ability to read and to process what is read. At the lowest literacy levels, people can retrieve information and apply it in routine, predictable ways. At higher levels people can analyze, evaluate and create new information based on what they read. This higher literacy level is needed to solve problems, think critically and be creative, the skills that are more and more in demand. At a time when workers face harder problems and require higher literacy levels, the proportion of adults with adequate skills, including those aged 16-25, has fallen over time.

The good news is that Alberta's 15-year-old students score above the Organization for Economic Cooperation and Development average on international assessments of reading skills. The bad news is that their average scores have also steadily fallen. What's more, the latest study showed that one in four Canadian students reported that reading is a waste of time, and almost half read only when they must.⁴

¹ *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies (PIAAC).*

² *What You Don't Know Can Hurt You: Literacy's Impact on Workplace Health and Safety.* Conference Board of Canada. 2010.

³ Lane, Janet and Murray, T. Scott, *Literacy Lost: Canada's Basic Skills Shortfall.* Canada West Foundation. 2018

⁴ O'Grady et al, "Performance of Canadian 15-year-olds"

Life is hard when you can't read

\$60B

Research has shown that a one per cent rise in average literacy skills increases productivity by five per cent and GDP by three per cent – about \$60 billion.

People with lower levels of literacy may have difficulty finding and retaining satisfying and appropriate employment — particularly in secure and well-paying jobs.⁵ What's more, higher literacy skills increase a person's probability of earning a higher income and having and maintaining good health.⁶ People with higher literacy skills are also more likely to be more socially engaged, to volunteer and have more trust in people and institutions.⁷ These effects have profound implications for social cohesion and quality of life for all.

Literacy begins with language learning from birth and can be gained and lost throughout life with instruction and practice – or the lack of it. With quality instruction and early assessment in school, combined with targeted interventions, almost every child can learn to read.

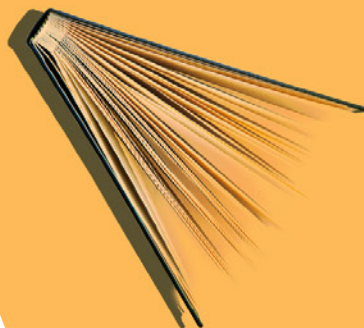
While much of the solution to this pervasive and persistent literacy problem requires education systems to change what they do, how and when they do it and for whom, this will not be enough.

The solutions to Alberta's literacy problem cross all life stages and all are required for Albertans to build and maintain skills they need to help themselves and the province flourish.

⁵ Linda Jacobsen and Andrea Long, *The Health and Social Dimensions of Adult Skills in Canada: Findings from the Programme for the International Assessment of Adult Competencies (PIAAC)* (Ottawa: Council of Ministers of Education Canada, 2018).

⁶ T. Scott Murray and Richard Shillington, *Understanding the Link between Literacy, Health Literacy and Health*, (Ottawa: DataAngel, 2012), <http://www.dataangel.ca/docs/UnderstandingtheLink2012.pdf>

⁷ Jacobsen and Long, *Health and Social dimensions*.





The Case for Literacy in Alberta

The following recommendations are targeted to various life-stages

01

Literacy begins in the home and can be nurtured from birth. Parents are their children's first teachers. They build language and literacy skills every time they talk, sing, read and play with their babies and toddlers.

About half of pre-school children in Canada attend daycare centres where opportunities for literacy learning through play abound. However, fewer than half of day care workers surveyed in 2021 engage children in daily, early literacy activities.⁹

Recommendations for parents and parental supports

Ensure that babies and toddlers build language and pre-literacy skills. This means that friends, family, community members and professionals provide encouragement and supports for literacy to young children and parents they encounter.

Daycare centres and pre-school programming be held accountable to provide quality literacy activities daily. This means that all staff receive appropriate training.

02

While K-12 education systems across the country achieve high rates of reading success, work is still necessary to ensure that every child reads at grade level by the end of Grade 3.

Recommendations for education systems

Assess every child's reading readiness as they enter school and throughout their early schooling. Identify the extent of any problem and the individual children. Provide financial and instructional resources for interventions targeted to the individual needs of each child who might fail to learn to read. Ensure teachers in primary grades have deep knowledge about how to teach children to read.

Encourage K-12 learners to read deeply for information, learning, interest and pleasure, both in print and on digital devices. Include age appropriate, relevant and interesting material in the curriculum and make it readily available for all learners.

03

Unfortunately, many post-secondary students with learning problems may not be aware their learning difficulties could stem from weak literacy. They will struggle to learn the content, fail to learn key competencies and may drop out of their programs unless literacy challenges are assessed and addressed.

Recommendations for post-secondary institutions

Assess post-secondary learners upon entry for their literacy capacity and provide targeted instruction if needed.

04

Workers with literacy levels below what is required by their jobs impact productivity, absenteeism and safety.

Recommendations for employers

Embed literacy into onboarding and ongoing training of workers, especially for jobs that are becoming more knowledge intensive.

05

Older adults can lose literacy skills if they do not maintain their literacy practice. The direct correlation between literacy levels and health care, volunteerism and citizenship make it important that older adults be encouraged to engage in activities which use literacy.

Recommendations for community organizations

Continue to advocate for funding to include literacy rich activities for all age groups including family literacy programming which is the gateway to learning for adults who experience marginalization.

That said, the most effective and efficient ways to reduce the cost of low literacy, both in dollar and human costs, are to provide literacy materials and supports early in the lives of children.

⁹ Canadian Children's Literacy Foundation. *The Role of Early Literacy in Early Learning and Child Care: A Survey of Early Childhood Educators* (Toronto: Canadian Children's Literacy Foundation, 2022). <https://childrensliteracy.ca/cclf/media/PDFs/ECE-Survey.pdf>

Introduction

Literacy is the single most important skill to learn. It is the learning to learn skill. It offers entry into whole new worlds of knowledge and ideas and the lives of other people. It is at the core of much of the work undertaken in the knowledge-based economy and is the skill most involved in learning beyond primary school. Literacy informs, inspires, entertains, transports, transforms and can be a source of joy. Literacy is the capacity to understand and apply what has been read in daily life, work and learning. In 2012, the Supreme Court of Canada recognized that learning to read is not a privilege, but a basic and essential human right.⁵

But for people who cannot read well, life is hard. People with low literacy skills are more likely to experience poor education outcomes, to live in poverty, to be incarcerated and to be unemployed or underemployed and be unemployed for longer periods.

While almost everyone can decode words, today's workplaces and the documents that bombard people in their daily lives demand a level of literacy that goes beyond just deciphering the text. In most jobs in Alberta's economy, workers must be able to understand what they have read and reliably apply that understanding to solve *new* problems. In the last international literacy assessment, 45 per cent of working-aged Albertans had inadequate literacy skills for the workplace.⁶

It is not just individuals who suffer from low literacy. Society and the economy suffer when people do not have the literacy skills to meet the demands of daily living, learning and working. People with higher levels of skill are more likely to be involved in their communities, to vote and to volunteer. As literacy levels rise in a population, so does productivity and levels of GDP per capita. A one per cent rise in average literacy levels in a population will increase productivity by five per cent and GDP by three per cent. This effect has doubled in the last two decades.

Because literacy matters to everyone, all Albertans have a part to play in improving literacy skills.

Government

Develop policies and programs that incentivize and assist stakeholders to achieve their part in building literacy skills.

Parents, friends and families

Engage children from birth in language and literacy building activities.

Daycare centres

Ensure that literacy activities are part of every day's activities.

Teachers, especially those who teach K-3

Insist on receiving science-based professional development on how to teach children to read.

School divisions

Assess children upon entrance to school and provide personalized interventions designed to help struggling readers.

Post-secondary institutions

Assess students early in their programs and offer remediation as required.

Employers

Embed literacy training into entry-level position orientation and upskilling and reskilling programming.

Community organizations

Include literacy rich activities in programming for all age groups.

⁵ https://www3.ohrc.on.ca/sites/default/files/Right%20to%20Read%20Executive%20Summary_OHRC%20English_0.pdf

⁶ Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies (PIAAC). <https://www150.statcan.gc.ca/n1/pub/89-555-x/89-555-x2013001-eng.htm>



The persistently high percentage of the working-age population with poor and weak literacy scores is particularly worrisome, as literacy is required for economic growth. People become more productive as they gain skills, increased productivity drives economic growth – and literacy is at the heart of all other skill development.

LITERACY LEVELS

What is Literacy?

Literacy skill involves more than the simple act of decoding words on the page. As measured through international studies of adult skills, literacy is based on an individual's ability to read and to process what is read. Being literate involves applying what has been read to solve a range of increasingly difficult problems in life, learning and work.⁷ At Levels 1 and 2 of the five literacy levels, people can retrieve information and apply it in routine, predictable ways. At higher levels people can analyze, evaluate and create new information based on what they read, which is what is needed to solve problems, think critically and be creative. The harder the problems faced, the higher the literacy level required. Literacy is also needed to acquire and apply high levels of numeracy and other skills.

Literacy Levels and what they mean

Level 1	Level 2	Level 3	Level 4	Level 5
0-225 pts	226-275 pts	276-325 pts	326-375 pts	376-500 pts
Tasks require the respondent to read short pieces of text to find a single piece of information. Knowledge and skill in recognizing basic vocabulary, determining the meaning of sentences and reading paragraphs is expected.	Tasks require basic matching between the text and information, along with some paraphrasing and making low-level inferences.	Texts are lengthier and denser. Tasks require interpreting and evaluating multiple pieces of information.	Tasks are usually multi-step, requiring a synthesis and integration of information, as well as making complex inferences.	Tasks require a search for, and integration of, information from a variety of sources and making high-level inferences. Application and evaluation of conceptual ideas may also be required.

Source: PIACC, 2013

⁷ For a detailed summary of the theory and methods used in the international studies, IALS, ALL and PIACC, see T. Scott Murray, Yvan Clermont and Marilyn Binkley, eds., *Measuring Adult Literacy and Life Skills: New Frameworks for Assessment* (Ottawa: Minister of Industry, 2005). <https://www150.statcan.gc.ca/n1/en/pub/89-552-m/89-552-m2005013-eng.pdf?st=tkS6mky8>

Literacy levels in Canada and Alberta generally compare well to those in countries with similar economies, but there are still many people without adequate levels of literacy.



THE CASE FOR LITERACY IN ALBERTA

The Problem

While literacy levels in Canada and Alberta generally compare well to those in countries with similar economies, there are still many people without adequate levels of literacy. This section outlines the problem in terms of literacy scores across the life stages.

Literacy is measured through school student assessments and through larger standardized tests and international assessments of students and adults. The OECD regularly undertakes a series of international assessments of literacy skills. Those for adults are done every decade or so; for youth the interval is normally three years. While the skill of literacy encompasses more than being able to read texts and documents, assessments of literacy are often called reading or reading comprehension tests.

Young Children

Note: There are hundreds of school authorities and 63 Francophone, public and separate school divisions in Alberta. Calgary Board of Education (CBE) results are reported to be higher than results across the province in many measures, and for illustration, this report uses results from the CBE.

In 2019, about 94 per cent of children attended Kindergarten in Alberta. In the fall semester of Kindergarten, teachers administer the Early Years Evaluation (EYE-TA) which assesses a child's awareness of self and environment,

and social, cognitive, language and communication and physical development. Aggregate results for this assessment are not made public but knowing the skill level of children as they enter the school system could help decision makers to identify where and how additional pre-school supports in the years should be made available.

All CBE elementary schools administer the EYE-TA kindergarten again later in the school year. Of children who were assessed to be at either Yellow (experiencing some difficulty) or Red (experiencing significant difficulty) in any of the assessed domains in the fall of 2021, 70% showed improvement by the spring.

While all Alberta elementary schools are encouraged to have a literacy plan for primary children, up until recently few have made a consistent practice of assessing the reading readiness of students entering Kindergarten. In 2021-22, just over half of the elementary schools in the CBE used the *Reading Readiness Screening Tool* to assess children entering Kindergarten. This tool measures three of the most important precursors to reading. Only about a third of the assessed children were fully ready to learn to read, and more than 40 per cent had only minimal development in two of the three components measured (Table 1).⁹ As more teachers have now been trained in its use, all schools will use this tool in the fall of 2023. For more on recent literacy initiatives championed by the CBE see page 25.

⁹ Calgary Board of Education, *Annual Education Results*

TABLE 1: Reading Readiness (% of students at each level)
(8 of 157 schools reporting)

CBE Kindergarten Reading Readiness Test 2021-22			
	Minimal Development	Developing Skills	Developing Well
Oral Expression	25.9	44.0	30.1
Phonological skills	41.9	24.6	33.5
Print-based skills	45.7	15.2	39.1

Fortunately, the new provincial English Language Arts (ELA) curriculum mandates that beginning in the 2022-23 school year all children will be assessed in Kindergarten and through the early school years. This will set the stage for providing appropriate instruction and any necessary interventions for children in the early grades.

School Age Children

Students in Grades 1-9 are assessed by teachers for their report cards. CBE students are assessed based on a scale that ranges from one (beginning understanding) to four (mastery).⁹

The report card reading stem which assesses multiple curricular outcomes in Grades 1-6 reports on a child's ability to 'read to explore and understand'.¹⁰ About 30 per cent of students earned a grade of either one or two in reading for the 2021-22 school year (Table 2). (These results may have been impacted by COVID, especially for those children in the early grades. Results prior to COVID were not published in previous CBE reports.)

The table also shows that while there are fewer students who are reading at the lowest level the proportion of students with achievement in reading at a level of three or four, either plateaus or drops with progress through the grade divisions.

TABLE 2: Report card reading stem grades for CBE students (% of students at each level)

	1 Beginning understanding	2 Developing understanding	3 Well-developed understanding	4 Mastery
	The quality of work within the body of evidence may be vague and/or undeveloped	The quality of work within the body of evidence may be adequate and/or concrete	The quality of work within the body of evidence may be clear and/or well-reasoned	The quality of work within the body of evidence may be perceptive and/or insightful
Grades 1-3	10.9	20.7	33.2	35.2
Grades 4-6	4.0	22.2	43.0	30.8
Grades 7-9	3.4	27.5	43.0	25.9

Source: Calgary Board of Education Annual Education Results Report 2021-22

⁹ <https://cbe.ab.ca/programs/curriculum/assessment-and-reporting/Documents/How-is-My-Child-Doing-in-School.pdf>

¹⁰ <https://cbe.ab.ca/programs/curriculum/assessment-and-reporting/Documents/K-6-New-Curriculum-Revised-Report-Card.pdf>

One reading assessment tool used by all CBE elementary schools in 2021-22, *Castles and Coltheart 3*, found that at least 28 per cent of Grade 2 and 3 students assessed were at 'at risk' on all three measures in the pre-test phase. These pre-test results were used to inform which students received further reading instruction between the pre-test and the post-test assessments. While over 40% of students moved out of the At-Risk category, more than half of the children remained at risk in all four measures in the post-test assessment phase.¹¹

Standardized testing

Alberta Standardized Provincial Achievement Tests (PATs) are administered only in Grades 6 and 9 and diploma exams are set for Grade 12 students. Literacy is a component of the ELA test. Regular report cards are a more fulsome assessment of how children are learning because standardized testing, while important, is a point in time snapshot only. Grade 12 diploma exam marks are blended into students' final overall grades.

Standardized test results for the most recent year, 2021-22, show that students generally do well, although are more likely to meet grade expectations in Grade 6 compared to Grade 9. While only five per cent of students did not meet grade level expectations in ELA in Grade 6, 17.5 per cent did not meet those standards in Grade 9. The comparable numbers for math in Grade 6 were 23 per cent and 30 per cent in Grade 9. Results showed that in the Grade 12 diploma exams, 12 per cent were below grade level in the highest-level English (30-1), and 13 per cent in the highest-level math (30-1). While only seven per cent of students did not meet grade level in English 30-2, a notable 27 per cent were below grade level in the math 30-2 course. See Appendix 2 for the PAT results for 2021-22 and the previous three-year average.

COVID-19

The results of the 2021-22 PATs show a decline in the percentage of students with acceptable and excellence scores from the previous three-year average in most subjects. This three-year average does not include the first two years of the pandemic as testing was suspended for those years. There might be other factors that have affected these results, but this drop looks to be attributable to learning gaps that occurred during the pandemic. Additional literacy and numeracy support funded by Alberta Education may be needed for students in higher grades and not just in the primary grades.¹²

Alarm about the learning losses experienced by students during the early phases of the pandemic – particularly those in the early grades – was raised by University of Alberta Professor George Georgiou.

However, there has been a rapid improvement in the 2022-23 school year which may be due to additional funds for early literacy supports for primary school children.

Professor Georgiou has subsequently found that:

“...on average, [students] are now performing at or above grade level, after slipping below that threshold during the pandemic. This means these students – especially the youngest learners, whose scores, on average, had fallen as much as a full year below grade level on reading tasks during the pandemic – are now making huge strides in reading.”¹³

Beginning in the 2022-23 school year, along with a new language and literacy curriculum, schools are mandated to assess literacy skills in K to 3 students, usually in January of each school year.¹⁴ Access to the results of these assessments will provide much needed data that will inform the extent to which more targeted intervention in literacy education is needed in an ongoing way regardless of pandemic disruption, both in the aggregate and for individual children.

¹¹ Calgary Board of Education, *Annual Education Results*

¹² Anna Junker, “Alberta schools to receive funds to help close literacy and numeracy gaps in Grades 2 and 3 caused by COVID: LaGrange,” *Edmonton Journal*, October 27, 2021. <https://edmontonjournal.com/news/politics/lagrange-to-provide-an-update-on-support-for-students-during-the-covid-19-pandemic>

¹³ Caroline Alphonso, “Alberta students show signs of improvement in reading abilities, research shows,” *Globe and Mail*, January 9, 2023, <https://www.theglobeandmail.com/canada/article-alberta-students-reading-pandemic/>

¹⁴ Government of Alberta, “Early years assessments,” K to 12 provincial assessment, accessed January, 2023, <https://www.alberta.ca/early-years-assessments.aspx>

Youth

Literacy levels of youth in secondary school are measured through the Programme of International Student Assessment (PISA) which measures the reading, mathematics and science skills of 15-year-olds across OECD countries every three years. This assessment is calibrated based on an average reading score of 500 in 2000, and in math in 2003. Canada places above the OECD average in these assessments, and Alberta's students place at or near the top of the Canadian provincial scores (Table 3).

Alberta students regularly perform higher than the Canadian average in reading, but the margin narrowed between 2000 and 2018. In 2012, Alberta's students' mathematics scores fell below the Canadian average for the first time.¹⁵ And, while average scores for all jurisdictions dropped in both subjects over the period, those for Alberta's students dropped the most.

In good news, Canada and Alberta had a smaller percentage of students with low reading scores than the OECD average at 14, 12, and 23 per cent respectively.

The PISA 2018 assessment offers further insights into the state of literacy in Canadian youth.

For many 15-year-olds, reading is not enjoyable. One in four Canadian students in the 2018 PISA assessment reported that reading is a waste of time, and almost half read only when they must.

Students were asked to report what they read most often and how often they read. Not surprisingly, the highest average reading score, 572, is achieved by students who read fiction several times per week. In general, the more a student reads anything the higher their average score. Fiction is for many people the most enjoyable reading material and reading fiction becomes a virtuous circle.

There are also differences across reading format. While the average score for Alberta students in 2018 was 532, for the almost 40 per cent who read mostly in paper format that average was 567. The 15 per cent who read mostly in digital format scored on average, 530. Format alone may not be responsible for this result. As with many educational outcomes, reading in paper format is highly correlated with socio-economic status and parental education – students with high levels of both have more access to paper format books.

The ready availability of e-readers, tablets, laptops and smart phones has rapidly increased the opportunity to read in a digital format. COVID-19 turned every student into a virtual learner for at least part of 2020, forcing the use of digital devices for reading. PISA 2022 results will be released in December 2023 and will provide important insight into how much digital reading through the pandemic affected literacy scores.

TABLE 3: PISA Scores over time*

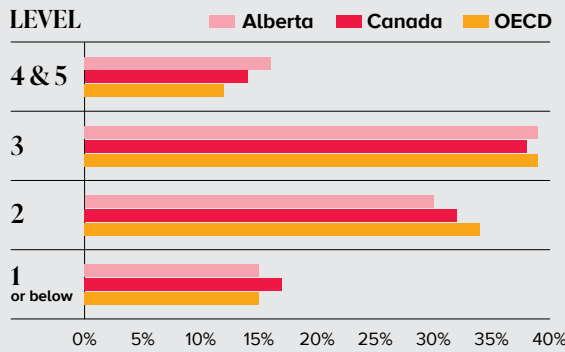
YEAR	Reading Average CANADA	Reading Average ALBERTA	Reading Average OECD	Mathematics Average CANADA	Mathematics Average ALBERTA	Mathematics Average OECD
2000	534	550	500			
2003	528	543	494	532	549	500
2006	527	535	492	527	530	498
2009	524	533	493	527	529	496
2012	523	525	496	518	517	494
2015	527	533	493	516	511	490
2018	520	532	487	512	511	489

Source: PISA 2018 (Table B.1.14a; B.3.15a)

* O'Grady et al., "The Performance of Canadian 15-year-olds in Reading, Mathematics, and Science," *Measuring up: Canadian Results of the OECD PISA 2018 Study* (Toronto: Council of Ministers of Education, 2019), https://www.cmec.ca/Publications/Lists/Publications/Attachments/396/PISA2018_PublicReport_EN.pdf

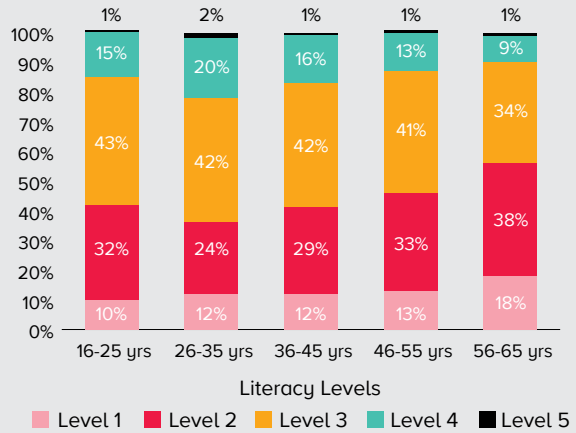
¹⁵ O'Grady et al., "Performance of Canadian 15-year-olds"

FIGURE 1: Adult Literacy Levels in 2011



Source: PIAAC

FIGURE 2: Literacy Levels by Age Group (AB, 2011)



Adult

The most recent adult assessment, the Programme of International Assessment of Adult Competencies (PIAAC) was conducted in 2011 and results were released in 2013. Similar surveys were administered in 1994 and 2003. The 2021 survey was postponed and will be completed in spring of 2023. Results will be forthcoming in late 2024.

Adult literacy is measured on a five-level, 500-point scale, with Level 3 (276-325 points) being the minimum level required to perform well in almost all jobs in the Canadian economy. For more on literacy levels, see Appendix 1.

Successive assessments show that while almost every adult can, at a minimum, decode words and locate basic information, almost half do not have the desired job-ready level of skill. Forty-nine per cent of Canadians (on par with the OECD) and 45 per cent of Albertans have literacy skills (in English or French) at Levels 1 and 2 (Figure 1).¹⁶ Canada ranks 11th in the OECD in its adult literacy levels.

Worryingly, the trend over the last two assessments was downward. The proportion of people with low or poor skills in 2011, at 49 per cent was an increase from 42 per cent in 2003. What's more, fewer had the highest levels of skills (18 per cent in 2003 and 14 per cent in 2011).¹⁷

The most recent adult literacy statistics are a decade old, but there is little reason to believe that literacy scores will have improved in the most recent survey.

Figure 2 breaks down literacy scores by age group. It is normal to gain literacy skill into one's early thirties, but after that the trend is downward.

Despite the numbers showing a steady decline in literacy after the age of 35, literacy skill loss does not occur naturally with age. The Swiss Federal Statistical Office found no biological reason for literacy skills to decline with age, at least until adults reach their mid-80s. The research associated the loss with a lack of skill use rather than aging.¹⁸

The most recent scores showed that 42 per cent of young people aged 16-25 had below Level 3 literacy skills. This despite Canadian 15-year-olds ranking well on the PISA. At below Level 3 youth do not have adequate literacy skills to fully meet the demands of most jobs in the economy, nor the skills required to learn easily and effectively in post-secondary education.

¹⁶ Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies (PIAAC). <https://www150.statcan.gc.ca/n1/pub/89-555-x/89-555-x2013001-eng.htm>

¹⁷ <https://www150.statcan.gc.ca/n1/pub/89-555-x/2013001/c-g/c-g4.1a-eng.htm>

¹⁸ Dominique Simone Rychen and Laura Hersh Salganik, eds., *Defining and Selecting Key Competencies* (Seattle: Hogrefe & Huber, 2001).

Literacy is the skill most associated with the capacity to adapt to change, and to learn quickly and efficiently.



While Kindergarten to Grade 12 education should provide assurance of good literacy skills, high school graduation does not guarantee adequate levels of literacy; 25 per cent of Ontario post-secondary students did not meet the threshold of adequate literacy in a 2018 study.¹⁹

Young adults who lose the most skill are, on average, those who do not go beyond secondary school in their education and those who work in jobs that do not demand high levels of literacy skill.²⁰

Scott Murray, coauthor of the 2005 report from the ALL survey writes:²¹

Analysis of data across the 1994 IAL, 2003 ALL and 2011 PIACC assessments reveals a gradual decline in the average scores of 15-24-year-olds over time, and significant early career skill loss experienced by youth who had lower skill levels when they graduated from high school. The decline in scores and the observed skill loss are both closely linked to declines in how much, and what youth read in school and on the job. There is no reason to believe that the social, educational and economic forces that underlie these declines have changed, so it is reasonable to assume that we will continue to see falling literacy scores and rising skill variance, which together will generate increases in skill-based inequality over a range of labour market, health, education and social outcomes.²²

This section has outlined the extent of the literacy problem in Alberta, the next section discusses why it is a problem.

¹⁹ Harvey P. Weingarten, Martin Hicks, *On Test: Skills, Summary of Findings from HEQCO's Skills Assessment Pilot Studies* (Toronto: Higher Education Quality Council of Ontario, 2018). https://heqco.ca/wp-content/uploads/2020/02/Formatted_EASI_PAWS-Summary-r2-1-1.pdf

²⁰ Scott Murray. Literacy in Canada: *Trends in skill supply and skill demand, skill shortages and surpluses and skill loss*. CMEC. To be published in 2023.

²¹ Murray, Clermont and Binkley, eds., *International Adult Literacy*

²² T. Scott Murray, email and phone conversation with author, January, 2023.

Why Literacy Matters

Constant change, the increased literacy demand of most jobs due at least in part to technological advances, and the need for rapid adaptation to those changes make literacy more important than ever to the economy, society and individuals.

Economic importance of literacy

Literacy is the skill most associated with the capacity to adapt to change, and to learn quickly and efficiently.

The combination of technological advances and changes in the way the world trades goods and services affect virtually every job role in every sector. Individuals face new work processes, more advanced machinery, changes to regulations or a new team of co-workers, all of which demand the capacity to adapt. Adaptability has become the most important skill employers look for when they hire new employees.²³ That is because change is constant in today's workplaces.

The key to adaptability is the capacity to learn quickly and efficiently. That key is forged in literacy.

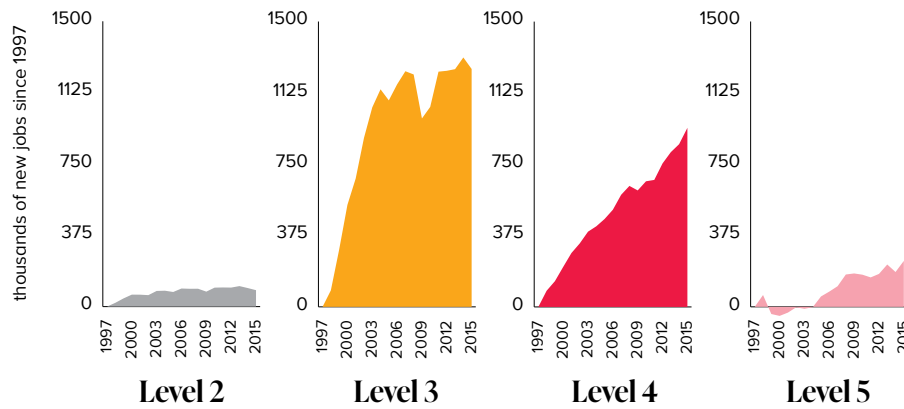
There has been a decrease in the number of basic manufacturing jobs and the automation of repetitive, hard, dirty and hazardous jobs. The jobs that remain, including those that have traditionally been considered low-skilled, now almost always require some basic digital skills.²⁴ At their heart, digital skills are an application of literacy and numeracy skills.

At the same time there has been a massive increase in knowledge-based jobs in sectors including education, healthcare, and professional and business services that require people to read at high levels in print and digitally.

²³ ERMA, "Why adaptability is important in helping you manage change," *Risk Management Article*, March 22, 2018, <https://www2.erm-academy.org/publication/risk-management-article/why-adaptability-important-important-helping-you-manage-change/>

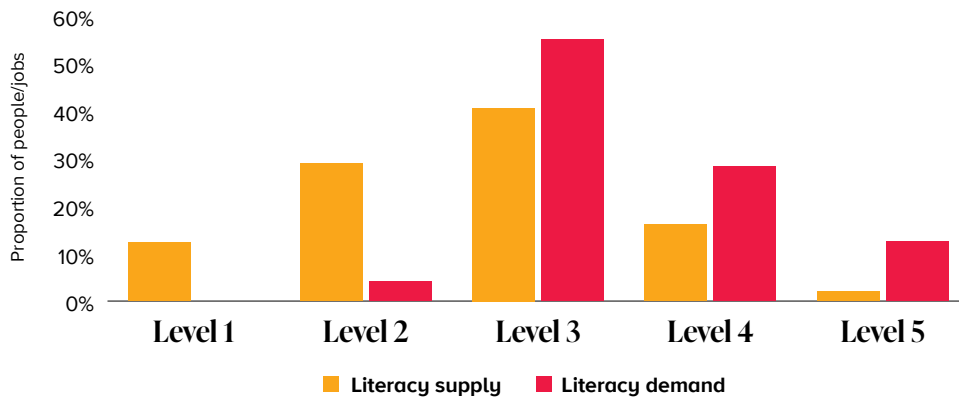
²⁴ <https://corporate.comcast.com/stories/national-skills-coalition-report-close-digital-skill-divide>

FIGURE 3: Literacy demand of jobs in the economy, 2018



Source: DataAngel analysis of ESDC’s Essential Skills Profile for reading text by occupation applied to estimated employment by occupation from the monthly Statistics Canada Labour Force Survey. Excerpted from Literacy Lost: Canada’s Basic Skill Shortfall, 2018.

FIGURE 4: Literacy demand of jobs and literacy supply in the workforce, Canada, 2011



Source: PIAAC, 2011. Employment and Social Development Canada’s (ESDC) essential skills profiles

Figure 3 shows the change in literacy demands of jobs over time. In the past, there were jobs that required workers to have only minimal levels of literacy, but an analysis of Economic and Social Development Canada’s Essential Skills Profiles, shows that now more than 90 per cent of new jobs in Canada require Level 3 literacy or higher. At Level 3, people can pull together and apply two or more pieces of information from a text.

However, the demand for literacy in the economy is not being met. Figure 4 shows the mismatch between the demand and supply of literacy.

A country does not become richer after it educates its workforce – it becomes richer because it educates its workforce.

This mismatch of literacy supply and demand causes problems in the economy – mismatched workers either struggle to perform the tasks of their jobs adequately or lose skills they had already gained due to lack of use.²⁵

Employees with Level 1 and 2 skills are more often in jobs requiring higher literacy skills, while some employees with Level 4 and 5 skills have excess skills for their positions. Some employees with Level 3 skills are in lower-skilled jobs, but many are in Level 4 or 5 jobs. Skills mismatches are costly: people with skills below the level their job demands are much less productive than they would be if their skills were at the appropriate level.²⁶

On average, workers with low literacy levels work less productively, increase the need for do-overs, are involved in more workplace accidents, have poorer health and are more likely to be absent from work, and are less adaptable to change.

Constant change has reduced the time that some skills retain their value – there is a need to learn new skills constantly. In 2017, the World Economic Forum estimated that the half-life of skills was reduced to about five years.²⁷ This continuous learning cycle – to keep pace at work and in daily life – is facilitated by the capacity to read well for content and meaning.

The persistently high percentage of the working-age population with poor and weak literacy scores is particularly worrisome, as literacy is required for economic growth.²⁸ People become more productive as they gain skills, increased productivity drives economic growth – and literacy is at the heart of all other skill development.

A country does not become richer after it educates its workforce – it becomes richer because it educates its workforce.

When Coulombe and Tremblay analyzed literacy rates across economies in 2005, they found that a one per cent increase in average literacy scores eventually increased productivity by two and a half per cent and GDP by one and a half per cent. By 2018, in a study for Canada West Foundation, Weiderhold and Schwerdt found that those numbers had doubled to five per cent and three per cent respectively.²⁹ At current rates of GDP, a one per cent rise in average literacy rates – an increase of just five points – would increase GDP by about \$60 Billion. The solutions to Canada’s literacy problems would not cost that much!

This means that literacy has become even more important to productivity and economic growth.

Employers are willing to pay more for high levels of literacy skills. Higher levels of literacy skill have been shown to also be rewarded with higher wage increases. The rate of increase in real wages (adjusted for inflation) for jobs that demand Levels 4 and 5 literacy skill was 15 times the increase for jobs that require only Level 2 literacy between 1999 and 2015.³⁰ This is not a surprising result given the mismatch between literacy supply and literacy demand, but it is an unfortunate one for workers who are left behind. Workers offered opportunities to improve their learning to learn skills improve their wage potential. Employers who need people with the skills to adopt new technologies and improve productivity also benefit when workers take this training.

²⁵ J. Douglas Wilms and T. Scott Murray, *Gaining and Losing Literacy Skills Over the Lifecourse*. <https://www150.statcan.gc.ca/n1/pub/89-552-m/89-552-m2007016-eng.htm>

²⁶ Lane and Murray, *Literacy Lost*, 12.

²⁷ Stephane Kasriel, “Skill, Re-Skill and Re-Skill Again. How to Keep up with the Future of Work,” World Economic Forum, July 31, 2017, <https://www.weforum.org/agenda/2017/07/skill-reskill-prepare-for-future-of-work/>

²⁸ Serge Coloumbe, Jean-François Tremblay, and Sylvie Marchand, *International Adult Literacy Survey: Literacy Scores, Human Capital and Growth across Fourteen OECD Countries* (Ottawa: Minister of Industry, 2004). <https://www150.statcan.gc.ca/n1/en/pub/89-552-m/89-552-m2004011-eng.pdf?st=JpDRq0Zc>

²⁹ Guido Schwerdt, Simon Wiederhold, and T. Scott Murray, “Literacy and growth: New Evidence from PIAAC,” *Programme for the International Assessment of Adult Competencies* (January 2020), https://kops.uni-konstanz.de/bitstream/handle/123456789/57386/Schwerdt_2-1jsfb4j0zlu556.pdf?sequence=1

³⁰ Lane and Murray, *Literacy Lost*.

Social importance of literacy

Life is hard when you cannot read.

Poor literacy is directly associated with a multitude of social issues. Experience with poverty, poor health, incarceration and chronic unemployment all go down as literacy goes up. Unemployment and length of unemployment increase for people with lower levels of literacy. They may have difficulty finding and retaining satisfying and appropriate employment— particularly in secure and well-paying jobs.³¹

Having higher literacy skills increases a person's probability of having and staying in good health.³² This is not just because people with higher literacy skills usually earn more and are less food insecure. It's also because they can better seek, read, understand and use information about their health and how to maintain it.

People with higher literacy skills are more likely to be more socially engaged, to volunteer and to be more trusting of people and institutions.³³ These skills also increase their feeling about how much they can influence government. These correlations have profound implications for social cohesion and quality of life for all.

Importance of literacy to individuals

There are so many reasons to read – the first being that, as with most activities, the more a person reads, the better reader they become. Other reasons to read include but are not limited to:

HEALTH

Numerous studies have shown that reading is good for your health.

When we read, not only are we improving memory and empathy, but research has shown that it makes us feel better and more positive too. Science has shown that reading has some amazing health benefits, including helping with depression, cutting stress, and reducing the chances of developing Alzheimer's later in life.³⁴

Reading also improves access to health information and health care services and thereby reduces strain on the health care system. With increased literacy, people have more knowledge and access to information about their health which improves health outcomes, and they are better able to advocate for services.

PARENTING

Parents are their children's first teachers, beginning with language. The conversational turns between infants and toddlers and their parents and caregivers are precursors to language and literacy development. Reading with young children is another way to increase the number of conversational turns.

Parents who read to young children know that bedtime reading rituals can ease the transition from active day to restful sleep – for both. "Goodnight Moon time" (a term coined to reflect time spent in literacy activities by parents – a reference to *Goodnight Moon*, by Margaret Wise Brown), also improves parent-child bonds by providing time for conversation. This parent remembers often temporarily abandoning supper preparation to calm down four fractious children by sitting on the floor with them and the latest favourite book.

³¹ Linda Jacobsen and Andrea Long, *The Health and Social Dimensions of Adult Skills in Canada: Findings from the Programme for the International Assessment of Adult Competencies (PIAAC)* (Ottawa: Council of Ministers of Education Canada, 2018).

³² T. Scott Murray and Richard Shillington, *Understanding the Link between Literacy, Health Literacy and Health*, (Ottawa: DataAngel, 2012), <http://www.dataangel.ca/docs/UnderstandingtheLink2012.pdf>

³³ Jacobsen and Long, *Health and Social dimensions*.

³⁴ Brendan Brown. "14 Reasons Why Reading is Good for your Health," *Business Insider*, December 12, 2016. <https://www.businessinsider.com/14-reasons-why-reading-is-good-for-your-health-2016-12?IR=T>

Reading with children also helps them to become readers themselves. It helps to build their brains.

The Council on Early Childhood advised in 2014 that:

Reading regularly with young children stimulates optimal patterns of brain development and strengthens parent-child relationships at a critical time in child development, which in turn builds language, literacy, and social-emotional skills that last a lifetime.³⁵

When young children in one 2017 study were listening to a story while looking at pictures, “their brain networks were helping each other, reinforcing neural connections and strengthening their intellectual architecture ...”³⁶

DISCERNMENT

The capacity to read and discern the validity of content is increasingly important in an age of disinformation and misinformation. Discernment depends on having read widely and well. The following excerpts from *Reader Come Home: The Reading Brain in a Digital World* by Maryanne Wolfe bring this issue to life:³⁷

... [T]hose who have read widely and well will have many resources to apply to what they read; those who do not will have less to bring, which, in turn, gives them less basis for inference, deduction, and analogical thought and makes them ripe for falling prey to unadjudicated information, whether fake news or complete fabrications.³⁸

... Without sufficient background knowledge, the rest of the deep reading processes will be deployed less often, leading to a situation in which many people will never move outside the boundaries of what they already know. For knowledge to evolve, we need to continuously add to our background knowledge.

Paradoxically, most factual information today comes from external sources that can be unadjudicated, and without proof of any form.³⁹

How we analyze and use this information and whether we cease to deploy the time-consuming critical processes to evaluate new information will significantly impact our future. Absent the checks and balances provided by both our prior knowledge content and our analytical processes, we run the risk of digesting information without questioning whether the quality or priority prioritization of the information available to us is accurate and free from external motivations and prejudices.⁴⁰

Sometimes we outsource our intelligence to the information outlets that offer the fastest, simplest, most digestible distillations of information we no longer want to think about ourselves.⁴¹

PLEASURE

People who read easily and well often read for the pleasure of it. Readers can be transported into the lives of others and through reading gain insights into what it means to be human. As a character said in George R. R. Martin’s *A Dance with Dragons*, “A reader lives a thousand lives before he dies. The man who never reads lives only one.”⁴²

Anthony Doerr, Author of *All the Light we Cannot See*, says it this way in his latest novel, *Cloud Cuckoo Land*:

“Anna ... practices her letters on the thousand blank pages of her mind. Each sign signifies a sound, and to link sounds is to form words, and to link words is to construct worlds.”⁴³

³⁵ Council on Early Childhood, “Literacy Promotion: An Essential Component of Primary Care Pediatric Practice,” *Pediatrics* 134, no. 2 (2014): 404-409. <https://doi.org/10.1542/peds.2014-1384>

³⁶ Meghan Cox Gurdon, *The Enchanted Hour: The Miraculous Power of Reading Aloud in the Age of Distraction* (New York: HarperCollins, 2019), 12.

³⁷ Wolfe, *Reader, Come Home*.

³⁸ *Ibid.*, p. 35

³⁹ *Ibid.*, p. 56

⁴⁰ *Ibid.*, p. 57

⁴¹ *Ibid.*, p. 75

⁴² George R. R. Martin, *A Dance with Dragons* (New York: Bantam, 2013), 495.

⁴³ Anthony Doerr, *Cloud Cuckoo Land* (New York: Scribner, 2021), 49

The image features a tennis racket and tennis balls on a background split vertically into orange and teal. The racket is positioned vertically, with its head at the top and handle at the bottom. The strings of the racket are also split vertically, with the left side being orange and the right side being teal. There are four tennis balls in total: one on the orange side and three on the teal side. The text is centered on the orange side of the background.

Conversational serve and returns
do more than build language.
They also build cognitive capacity and
social-emotional skills.

SOLUTIONS

Becoming Literate

A full discussion of the science of teaching and learning how to read is beyond the scope of this paper. In brief, literacy begins from birth and then progresses through instruction and practice throughout one's lifetime.

The Early Years At Home

The interactions between parents, caregivers and children are the basis of language and literacy learning. One of the most important language learning tools is serve and return, sometimes called conversational returns.

Serve and return works like a game of tennis or volleyball between child and caregiver. The child 'serves' by reaching out for interaction—with eye contact, facial expressions, gestures, babbling, or touch. A responsive caregiver will 'return the serve' by speaking back, playing peekaboo, or sharing a toy or a laugh.⁴⁴

These serve and returns do more than build language. They also build cognitive capacity and social-emotional skills.

These back-and-forth exchanges are the building blocks of children's early brain development. They help children learn how to control their emotions, cope with stress, and learn skills that will serve as a foundation for later development. A caregiver who is sensitive and responsive to a young child's signals provides an environment rich in serve-and-return experiences.⁴⁵

⁴⁴ Alberta Family Wellness. <https://www.albertafamilywellness.org/what-we-know/serve-and-return#:~:text=Serve%20and%20return%20works%20like,a%20toy%20or%20a%20laugh.>

⁴⁵ <https://www.albertafamilywellness.org/what-we-know/serve-and-return#:~:text=Serve%20and%20return%20works%20like,a%20toy%20or%20a%20laugh.>

LANGUAGE ENVIRONMENT ANALYSIS (LENA)

LENA, a U.S.-based program, measures the number of words and conversational returns that a child experiences. Participating children (0-33 months) wear a device during their waking hours, the data collected is uploaded to the program at the end of every day and parents learn about their child's language environment from program reports.

Currently, the only Canadian site for this program is at the YW in Calgary which reaches 150 families per year and operates in 10-week blocks. The program has evolved to include activities that encourage families to read together. Families learn about language development and how to incorporate language building activities into every day. Every week, each family also receives a book to take home.

Parents want to do everything they can to help their children succeed. Language building activities are fun and rewarding for families and can be new to people from some backgrounds and cultures.

YW Calgary wants to expand to include more families and are championing the program in Alberta. They know that increased language building activity in a child's early years will reduce the need for intervention later.

This rigorous, science-based program relies on the data collected through the devices. Beyond increased language skills, results of LENA's 10-year study, released in 2018, show increased IQ levels in children who experienced more conversational returns (about 40 per hour over a 12-hour day) between 18 and 24 months of age.⁴⁶

Children who enter Kindergarten with the lowest reading readiness have most likely not experienced much language and literacy activity in their pre-school years. The Annie E. Casey Foundation found in 2012, that:

... children who enter Kindergarten having had little or no 'Goodnight Moon time' tend to lag other children by twelve to fourteen months in their language and prereading skills.⁴⁷



Dolly Parton, well known country music singer and philanthropist, understands the importance of reading with young children. The Dollywood Foundation's *Imagination Library* partners with the Calgary Public Library's *My First Bookshelf Program* and covers the costs of program administration and curation of Canadian content.

Through the program, young participants (0-5 years) receive a quality, personalized, age-appropriate book every month in the mail. A child can receive up to 60 books by the time he or she reaches their fifth birthday.

Calgary Public Library Project Lead, Kristen Duke, maintains contact with participating families by offering them regular opportunities to meet for facilitated sessions that demonstrate ways to share stories and other literacy-building activities with young children. The primary goal of the program is to support families with limited access to literacy materials along their life-long learning journeys and to help young children get ready for Kindergarten. She says, "this program helps families to build positive attitudes towards reading. It's so much fun to see the five-year-olds graduate and receive a Kindergarten readiness backpack. And their families usually become borrowers and users of other services offered by the library."

Calgary Public Library was the first major Canadian library partner for this program, but it wasn't the last. Now Edmonton and other libraries are investing some of their budgets in this unique initiative. More young children, many from families that experience marginalization, have the gift of books showing up in their mailbox every month.

⁴⁶ LENA. Inside Early Talk_20210303.pdf

⁴⁷ The Annie E. Casey Foundation, *The First Eight Years: Giving Kids a Foundation for Lifetime Success* (Baltimore: Annie E. Casey Foundation, 2013), <https://assets.oecf.org/m/resourcedoc/AECF-TheFirstEightYearsKCpolicyreport-2013.pdf>

Childhood At School

Once in school, children develop the skill of reading through building and then weaving together eight different components. The reading rope model, created by Hollis Scarborough, provides an easy-to-understand illustration of what these components are and how they build and then come together.⁴⁸

Scarborough's Reading Rope Model

The many strands that are woven into skilled reading

LANGUAGE COMPREHENSION

Background Knowledge

(facts, concepts, etc.)

Vocabulary

(breadth, precision, links, etc.)

Language Structures

(syntax, semantics, etc.)

Verbal Reasoning

(inference, metaphor, etc.)

Literacy Knowledge

(print concepts, genres, etc.)

WORD RECOGNITION

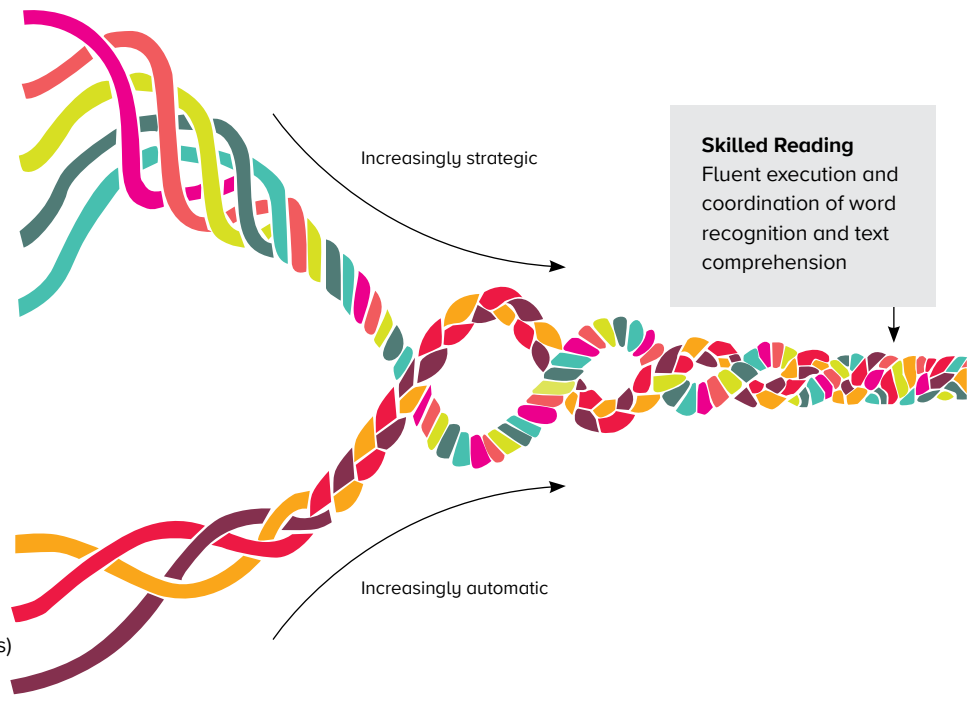
Phonological Awareness

(syllables, phonemes, etc.)

Decoding (alphabetic principle,
spelling-sound correspondences)

Sight Recognition

(of familiar words)



Individuals develop reading skills through building and then weaving together eight different components. The reading rope model, created by Hollis Scarborough, provides an easy-to-understand illustration of what these components are and how they build and then come together.

Source: <https://dyslexiaida.org/scarboroughs-reading-rope-a-groundbreaking-infographic/>

⁴⁸ <https://dyslexiaida.org/scarboroughs-reading-rope-a-groundbreaking-infographic/>

A better understanding of how people become literate has led to developments in teaching reading in elementary school and into adulthood. It has also allowed for specific assessments that provide insight into which components a struggling reader is missing.

Almost everyone, including those with learning disabilities can, with the appropriate assistance, learn to read and to enjoy it – especially if that assistance comes when the reader is still a child.⁴⁹

Teachers have not always received good instruction on how to teach children to read using the components in the Reading Rope and how to build them in their students.

Fortunately, there is now an increased focus and funding for literacy in the Alberta school system.⁵⁰ Teachers have been given the opportunity to upgrade their capacity to teach literacy and more resources and assessment tools have been provided. By 2022, within the CBE about 57 per cent of schools had begun to look at and use the Literacy Framework that guides this increased focus on literacy for all students. The framework states:

A focus on literacy throughout all disciplines is an important way to allow learners to develop and demonstrate deep conceptual understandings, think creatively and critically, and generate new ideas and knowledge.⁵¹

The essential elements of the framework include a) the creation of literacy environments that include materials and instruction and are inclusive of students, families, communities and educators; b) the inclusion of research-informed, collaborative best teaching practices; and c) a cycle of instruction and assessment from a variety of sources and adjustments necessary to improve student learning (paraphrased from the document).⁵²

EARLY LITERACY INITIATIVE

In its update to the English Language Arts and Literature early literacy curriculum, the Government of Alberta has incorporated explicit instruction in the components of reading which are solidly founded in reading research. Carola Tiltmann, manager of the Learning Disabilities and ADHD Network in Calgary, hopes that this change to the curriculum is permanent. She says, with this curriculum “about 85% of children should be able to read fluently by the end of Grade 3. Of the remainder, two-thirds will some need intervention, and the rest will need more intensive focused attention.”

Advances in the science of reading have allowed for the development of assessments that can pinpoint which components of reading cause a beginning reader’s difficulties.⁵³ Once known, specific interventions to help them overcome these difficulties can be effectively implemented.

The government has also mandated that early literacy assessments be done every year with students in Kindergarten to Grade 3. Because the assessments are administered in Kindergarten, children most at risk, including those with learning disabilities and English language learners, can be identified early and specific interventions for individual children can begin right away. Previously, reading difficulties were not systematically addressed until Grade 3 or later. The earlier the proper interventions are available for children who need them, the better. Research has shown that learning to read well is best accomplished in the early grades, before about age eight, when brain networks are forming the interfaces of learning how to read.⁵⁴ After that, while it can still be done, the learning will take longer, and the instruction will need to be more intensive.



⁴⁹ *A discussion of reading disabilities is beyond the scope of this paper – however up to 95% of children who struggle to read can overcome their difficulties if they get the appropriate assistance. See, Kathryn Drummond, “About Reading Disabilities, Learning Disabilities, and Reading Difficulties,” Reading Rockets, accessed January, 2023, <https://www.readingrockets.org/article/about-reading-disabilities-learning-disabilities-and-reading-difficulties>

⁵⁰ Government of Alberta, “Literacy program to address COVID-19 learning loss,” *Education News Canada*, March 15, 2021, <https://educationnewscanada.com/article/education/level/k12/3/886920/literacy-program-to-address-covid-19-learning-loss.html>

⁵¹ <https://www.cbe.ab.ca/about-us/policies-and-regulations/Documents/Literacy-Framework.pdf>

⁵² *ibid*

⁵³ The CC3, is one of these assessments. Professor Georgiou and his colleagues are developing reading grade level norms for Alberta based on this assessment.

⁵⁴ K. Chyl et al. *Brain dynamics of a(typical) reading development – a review of longitudinal studies*. *npj Science of Learning* (2021) 6:4. <https://www.nature.com/articles/s41539-020-00081-5>

Carola would also like to see every teacher, especially those in Division 1 (K-3) learn about the science of learning to read and how to effectively teach reading. Curriculum expectations can only be achieved when they are matched by teacher capacity. Therefore, she recommends that they be included in on-going professional development for current teachers and school administrators, but more importantly, that they be part of the initial education and training for all pre-service teachers.

With reading as the gateway to all learning beyond Grade 3 and the way today's society navigates living and working, well-trained teachers are vital to every child's success.

Reading can be enjoyable – but when reading is hard, struggling readers need material that is at least enjoyable and of interest to read. Reading builds on itself: the more you read, the more background knowledge and other strands of the reading rope are strengthened and the easier it becomes. To instill the desire to read in young children and for youth to maintain their reading practice – when they must, as well as for pleasure subject matter needs to be relatable, relevant or of interest to them.

However, the Alberta Education list of authorized novels and nonfiction for Grades 4-12 was last updated in 2005 before the first iPhone was released (in 2007), and most likely needs to be updated.⁵⁵

Alternatives to reading are easy to find. Television, streaming services, video games and digital devices of all kinds offer limitless entertainment. Literary professor Mark Edmundson, who coined the term 'swimming in entertainment,' worried almost two decades ago "that there is a diminishing desire among our young people to expend [the effort to read deeply and critically] ... particularly if the alternative is to be passively entertained using the barely skimmed surface of their cognitive capabilities."⁵⁶

While youth may engage in more reading, where and how they read has a tremendous impact on their literacy skills – and their capacity to use what they read in living, learning and working.

Changes in Literacy Learning and Assessment

Many young children suffered learning losses during the disruption caused by the COVID-19 pandemic. The need to make change in how literacy teaching and learning happens became even more urgent because of these learning losses. Fortunately, both the province and its school boards took up the challenge. One change leader is the Calgary Board of Education.

The CBE Literacy Framework, published in September of 2022, builds off its previous five-year literacy strategy, and recognizes that a turn in focus was needed. This new focus is towards continuous early assessment and quality instruction predicated on professional development to ensure that teachers have a deeper knowledge and understanding of both. By the fall of 2023, all CBE elementary schools will administer diagnostic tools to evaluate the reading readiness and progress of Kindergarten and primary grade children. Children who experience difficulty in any assessed domain, will receive responsive instruction and where appropriate interventions. Specifically, the newly focused literacy strategy includes:

Professional development

- Training for Kindergarten teachers in the use of The Right to Read program and the Reading Readiness Screening Tool.
- System wide and school based professional learning to improve Grade 1 – 6 teachers' understanding of literacy instruction in relation to the new provincial English Language Arts curriculum.
- Instruction for all middle school literacy teachers on the Improving Reading for Older Students (IROS) course to improve literacy outcomes for older students who are reading below grade level.

In the classroom

- Evaluation of young children through the appropriate tools to identify their needs for instruction and intervention.
- Refined intervention plans for children who have been assessed as needing further instruction.
- Updated classroom literacy resources that align with new curriculum to be used for daily instruction and responsive intervention.

While the CBE acknowledges that there is still room to grow in enabling and instilling a love of reading in many of their students, they have a plan that with time should help to improve the literacy scores and everyday literacy activities of their graduates.

⁵⁵ Alberta Education, "Grades 4 to 12: English Language Arts," Authorized novels and nonfiction annotated list (Edmonton: Government of Alberta, 2005), <https://open.alberta.ca/dataset/a0161050-c8a6-43c0-b66b-b714c79a2ce7/resource/68e64d1e-679f-4e0e-a7d1-51d866c609be/download/3802651-educ-ela-novel-grades-4to12.pdf>

⁵⁶ M. Edmundson, *Why Read?* (New York: Bloomsbury, 2004), as cited in Maryanne Wolfe in Reader, Come Home, p. 75

LEARNING TO TEACH

The *MRU Reads* program offered by Mount Royal University's Department of Education provides pre-service teachers with the opportunity to tutor children who are learning to read. Literacy tutoring is a regular component of teacher training in the U.S., but not yet in Canada. Tutoring helps teacher candidates to grasp reading concepts to become more responsive teachers and to develop strong values related to literacy instruction.⁵⁷

As teachers prepare for the new literacy curriculum, tutoring young children will give them the opportunity to integrate the theoretical concepts into their practice and understand different student's needs.

Professor Jodi Nickel, program lead, says "the 20-week program changes her students' understanding of how complex teaching and learning how to read is." As one of the students who has reflected on the experience as part of her learning commented, "I believe this experience allowed me to truly understand the importance of implementing an organized and systematic plan for instruction and the significance of providing instruction in multiple ways that stimulate learners and allow students to apply skills across concepts."

Better trained teachers who understand the theory and practice of teaching young children to read are essential to increase literacy levels in Alberta. *MRU Reads* offers a proven way to provide that training.

ABCD

YOUTH CENTRES OF CALGARY – OGDEN

Books are everywhere at Youth Centres of Calgary (YCC) in Ogden, an after-school haven for 9-15-year-olds. The children are welcomed every day for snacks, activities, homework support and a hot supper before they go home. Most don't go every day – there are about 200 children registered and there is room for 35 per day.

Founder Jane Wachowich, staff and volunteers have provided stable adult support to vulnerable kids in Ogden for the last four years. The program, based in a refurbished neighbourhood house, offers activities including music lessons, basketball, computer time, board games, art supplies and a reading room. But it's so much more than that. The positive social connections and mentorship can be a real contrast to the children's home lives. Notes from the children include "someone loves you no matter what."

An excerpt from an article on the YCC website explains what's going on behind all the activity:

We model good and healthy behaviour and kindness and offset the effects of stress on their brain development by giving them an opportunity, for a period of time every day, where their cortisol levels and exposure to toxic stress are reduced.

Jane says that for her, "the books in every room are the zucchini in the chocolate cake" and she is always looking for ways to encourage participants to sit and relax and to have fun with reading. "Reading is such a wonderful and inexpensive way for kids to experience other worlds and to find enjoyment in their lives," she says, adding "when the children take a book home, they don't have to bring it back."

The program, funded through foundations, the private sector and individuals, is so successful Jane will expand into another Calgary neighbourhood soon. Not all heroes wear capes.

⁵⁷ Jodi Nickel & Joy Chadwick (2022): Tutoring to build teacher candidates' competence as reading teachers, *Mentoring & Tutoring: Partnership in Learning*, DOI: 10.1080/13611267.2022.2070990 <https://doi.org/10.1080/13611267.2022.2070990>

Adulthood In the Community

Community-based programming geared to adult learning comes in many forms. Family literacy programs, at first glance, are usually fun-filled sessions of reading, singing and play and involve both parents or caregivers and young children. The sessions do help build language and literacy in young children, but they also build the skills of parents. Adults learn how to engage their children in these types of activities or build on skills they have already gained, and they often build their own language and literacy skills or gain interest in continuing their own learning.

Adults in Alberta also have access to literacy and adult learning programs through their local Community Adult Learning Program, funded through Alberta Advanced Education. This network of more than 80 organizations across the province offers programming for adults in literacy, numeracy, basic digital skills, English language learning and other programs to meet local demand.⁵⁸



Adulthood Community Colleges

The nine community colleges and two new polytechnics offer programs in foundational or basic adult learning in major centres across Alberta. As an example, Calgary's Bow Valley College School of Foundational Learning is devoted to programs which build literacy and other basic skills and improve the English of many of the thousands of newcomers who come to Calgary every year.⁵⁹

Adulthood At Work

As shown above, workers with higher levels of literacy skills are more productive. As new technologies are incorporated into their workplaces, people need literacy skills to learn how to use them.

Many people do not have the level of literacy skills needed to perform the tasks of their jobs well consistently and reliably. Employers who are aware of the issues associated with a lack of literacy skill in their employees can access programs such as those developed and offered through Alberta Workplace Essential Skills (AWES).⁶⁰ These programs qualify for the Canada-Alberta Job Grant, which covers from two-thirds to the full cost of programs depending on the situation.⁶¹ Unfortunately, too few do.

⁵⁸ <https://calp.ca/about-us.html>

⁵⁹ <https://bowvalleycollege.ca/schools/school-of-foundational-learning>

⁶⁰ <https://awes.ca/>

⁶¹ <https://www.alberta.ca/canada-alberta-job-grant.aspx>

MAGIC CARPET RIDE

Helping their children do well in school is a strong motivation for many parents to take their first step into adult learning. For more than 20 years, the *Magic Carpet Ride* program at the CanLearn Society has been helping families with preschool children build their literacy skills. Parents and children participate together in this free family literacy program. Once per week for up to 10 months, small groups gather in local community meeting places with an experienced facilitator. The program improves the literacy skills of parents and children as it creates bridges between home and school and between home and adult learning opportunities.

Family literacy program activities encourage positive, and in many cases, new kinds of interactions between parents and young children. For some parents it's the first time they understand that taking time to play with their children helps brain and language development. Through active participation in stories, singing, and literacy activities, parents begin to see themselves as both teacher and learner.

Like *Magic Carpet Ride*, family literacy programs work to help parents to reimagine their own goals and dreams. For many participants, the program offers a safe and welcoming place to share their culture and skills. Recently, some participants collaborated on their own cookbook. Social connections are vitally important to parents who are isolated as many were during the pandemic.

Magic Carpet Ride, funded through Family and Community Support Services and Calgary Learns, is offered in communities where families are often recent immigrants or vulnerable because of poverty or other trauma. For parents to become active in their children's learning, they may first need to see themselves as having agency. One *Magic Carpet Ride* facilitator tucked Hershey's Kisses into the hands of parents in her programs during the week of Valentine's Day saying "You're beautiful, you're important and you're enough." This kind of caring support for participants ensures that family literacy is a gateway to literacy and learning for parents and their children.

Literacy is the gateway to other learning. First, we learn to read; then, we read to learn.

Being Literate

Being literate demands that people apply mental strategies that they build and maintain through practice. The adequacy of an individual's skill level can only be judged relative to the demands they face in work and daily life or that they need to realize their personal goals. Although most people become fluent and automatic readers through their initial education, they can learn to be a proficient reader through other ways, at any age. Once a person can read, their literacy skill is maintained through practice. However, adults who face low levels of demand for literacy skill at work and who do not use literacy regularly in other parts of their lives risk losing their skill over their lives.⁶²

People read for information and communication in all aspects of their lives, and for pleasure and interest, at home, at work and in their leisure activities. Reading is a major component in solving math problems and is required as part of virtually every job in the economy. Even jobs that have traditionally been more physical now require some digital skills – to record hours worked or tasks completed for example – and as such require some level of literacy skill.

Literacy is also the gateway to other learning. First, we learn to read; then, we read to learn.

To learn and retain mentally demanding new skills, people must first be able to read well. Research has shown that literacy:

- Underlies the building and application of other skills.
- Is necessary for jobs that require workers to apply technical skills and knowledge in non-routine ways.

⁶² T. Scott Murray, Marilyn Binkley, and Richard Shillington, *Reconstructing the Evolution of the American Supply of Cognitive Skills: A Synthetic Cohort Analysis, Programme for the International Assessment of Adult Competencies* (May 2016), http://piaacgateway.com/s/Murray_Binkley_Shillington_PIAAC.pdf

- Is a better indicator of a person’s capacity to adapt, change and grow than simply belonging to a particular occupation, or holding a particular credential.
- Is a better proxy for a person’s capacity to learn than other measures, such as educational attainment. Skill levels change over the course of one’s life.⁶³

All other literacies – digital, financial, environmental and so on – are based on the application of reading literacy and numeracy skills.

The human brain was not originally wired for reading, but as people developed symbols and then letters to create short cuts for communication, brains built new circuits that evolved to allow fluid and automatic reading.⁶⁴ Written words and the ability to read those words enabled knowledge to be transmitted widely.

Reading and other literacy practices become a virtuous circle – the more a person reads, the better they become at it. Fluid and automatic readers can read much more quickly than beginners because they use their previous knowledge and powers of prediction. What we already know “...before we read any sentence prepares us to recognize even the visual shapes of the individual words faster and to understand their meanings more rapidly and more precisely in any new context.”⁶⁵

The act of reading printed words, especially lengthy articles and books, can be accomplished through skimming quickly for items of information or reading more deeply for meaning. Deep reading engages the reader with the mind of the author and has been shown to build empathy in readers. “... communication occurs despite the solitary nature of the reading act – an unexpected preparation for our efforts to come to know other human beings, understand what they feel and begin to change our sense of who or what is ‘other’.”⁶⁶

Deep reading engages the brain more fully and requires the reader to apply previously attained knowledge and experience.

Since the advent of the Internet, more time has been spent reading on-line than in print. The Global Information Industry Center at the University of California, San Diego reported that in 2009, the average person consumed 34 gigabytes of information daily through all sources, including reading. Thirty-four gigabytes would equate to about one novel. But of course, information consumption happens sporadically – rarely in a sustained manner – and the printed word was only a small portion of that huge amount. An excerpt from the study:

In the past, information consumption was overwhelmingly passive, with telephone being the only interactive medium. Thanks to computers, a full third of words and more than half of bytes are now received interactively. Reading, which was in decline due to the growth of television, tripled from 1980 to 2008, because it is the overwhelmingly preferred way to receive words on the Internet.⁶⁷

But this increase in reading does not mean that literacy levels will increase. On-line reading may not be deep reading. Research has shown that, “... screen-based reading behavior is characterized by more time spent on browsing and scanning, keyword spotting, one-time reading, non-linear reading, and reading more selectively, while less time is spent on in-depth reading, and concentrated reading. Decreasing sustained attention is also noted.”⁶⁸

At a time when being literate is increasingly important and people are reading more, the collective capacity to internalize and apply what has been read may be going down.

⁶³ Murray, Clermont, and Binkley, eds., *Measuring adult literacy*; Mike McCracken and T. Scott Murray, *The Economic Benefits of Literacy: Evidence and Implications for Public Policy* (Ottawa: DataAngel, 2010); Cathy Wylie et al., *Competencies at age 14 and competency development for the Competent Children*, Competent Learners study sample (Auckland: Ministry of Education, 2006). https://www.educationcounts.govt.nz/_data/assets/pdf_file/0008/7298/Competencies-at-age-14-and-competency-development-for-the-Competent-Children-Competent-Learners-study-sample.pdf; Cathy Wylie et al., *Competent children at 12* (Wellington: New Zealand Council for Educational Research, 2004). <https://www.nzcer.org.nz/system/files/13248.pdf>

⁶⁴ Maryanne Wolfe, *Reader, Come Home: The Reading Brain in a Digital World* (New York: Harper Collins, 2018).

⁶⁵ *Ibid*, 37.

⁶⁶ *Ibid*, 43.

⁶⁷ Roger E. Bohn and James E. Short, *How Much Information? 2009 Report on American Consumers*. (San Diego: Global Information Industry Centre, 2009). https://group47.com/HMI_2009_ConsumerReport_Dec9_2009.pdf

⁶⁸ Ziming Liu, “Reading Behaviour in the Digital Environment: Changes in Reading Behaviour Over the Past Ten Years,” *Journal of Documentation* 61, no. 6 (2005): 700-712. <https://doi.org/10.1108/00220410510632040>



Solutions to the literacy problem in Alberta



Recommendations

Solutions to the literacy problem in Alberta cross all life stages and involve every Albertan. All these solutions are required for all Albertans to build and maintain the skills needed.

The recommendations are targeted to various life-stages.



01

Literacy begins in the home and can be nurtured from birth. Parents are their children's first teachers, and they build language and literacy skills every time they talk, sing, read and play with their babies and toddlers. Language is the precursor to literacy – the more words a child hears in the first few years of life, the more sense can be made from the squiggles on the pages of books later. Support from friends, family, health care providers and parent-child community-based family literacy programs can assist parents to increase language and literacy activities in their homes.

About half of pre-school children in Canada, attend daycare centres, where the opportunities for literacy learning through play abound. However, fewer than half of day care workers surveyed in 2021 engage children in daily, early literacy activities.⁶⁹ Embedding quality literacy activities, designed to engage children in literacy play and learning into daycare and community parent-child programming is essential to preparing children for Kindergarten.

Recommendations for parents and parental supports

Ensure that babies and toddlers build language and pre-literacy skills. This means that friends, family and community members and every professional who encounters young children and their parents provide encouragement and supports for literacy. Digital devices are not good substitutes for parental reading and play. No child should enter school without having held and chewed on a book or had someone read to them regularly.

Daycare centres and pre-school programming be held accountable to provide quality literacy activities daily. This means that all staff need appropriate training.

⁶⁹ Canadian Children's Literacy Foundation. *The Role of Early Literacy in Early Learning and Child Care: A Survey of Early Childhood Educators* (Toronto: Canadian Children's Literacy Foundation, 2022). <https://childrensliteracy.ca/cclf/media/PDFs/ECE-Survey.pdf>



02

While the K-12 education systems across the country achieve high rates of reading success, for many children, there is still work to be done to ensure that every child reads at grade level by the end of Grade 3. Children who still struggle to read at this point tend to fall behind in school and their literacy gap increases over time. Policies and programs that dedicate literacy support for children who cannot read at grade level should begin with students while they are in Kindergarten. Children need practice over time to improve their literacy, which leads to enjoyment of reading – without this enjoyment, literacy practice will decrease over time which will cause their literacy level as adults to deteriorate.

Recommendations for the **education system**

Assess every child for their reading readiness upon entering school and throughout their early schooling. Identify the extent of the problem and the individual children who are at risk.

Provide financial and instructional resources for interventions targeted to individual needs for every child at risk of failing to learn to read. Ensure that teachers in primary grades have deep knowledge about how to teach children to read.

Encourage K-12 learners to read deeply for information, learning, interest and pleasure, both in print as well as on their digital devices. Include age appropriate yet relevant and interesting material in the curriculum and make it readily available for all learners.



03

Any improvement in the attention to literacy in school children will take years to manifest in young adults, many of whom continue to post-secondary education. Unfortunately, many post-secondary students with learning problems may not be aware that learning difficulties could stem from weak literacy, and they will struggle to learn content, fail to learn key competencies and, in many cases, eventually drop out of their programs. To avoid poor outcomes for post-secondary students, colleges and universities could assess student literacy levels upon entry and provide those without adequate skills the opportunity to upgrade them early in their studies.⁷⁰

Recommendations for **post-secondary institutions**

Assess post-secondary learners upon entry for their literacy capacity and provide targeted instruction if needed.

⁷⁰ Janet Lane and T. Scott Murray, *What now? Ready or Not: The Need to Improve this Gen Literacy* (Calgary: Canada West Foundation, 2019). <https://cwf.ca/research/publications/what-now-ready-or-not-the-need-to-improve-this-gen-literacy/>



04

When students leave secondary and post-secondary education, whether they have graduated or not, they usually become part of the workforce. The Alberta workforce also benefits from a large number of migrants and immigrants, but some of them have low literacy skills in English or French. Workers with low literacy levels, on average, work less productively, increase the need for do-overs, are involved in more workplace accidents, have poorer health and are more likely to be absent from work, and are less adaptable to change. The incorporation of literacy training into initial onboarding and ongoing workplace training can help employees to be successful and employers to avoid these issues. It is also important that employees use the literacy skills they have gained while at work. Unused literacy skills deteriorate over time.⁷¹

Recommendations for employers

Embed literacy into onboarding and ongoing training of workers, especially for jobs that are becoming more knowledge intensive.



05

Older adults can lose literacy skill if they do not maintain their literacy practice. The direct correlation between literacy levels and health care, volunteerism and citizenship make it important that older adults be encouraged to engage in activities which use literacy. Friends, family, seniors' programming, public libraries and social activities designed for all age groups can help people to remain involved with literacy related activities, to have better health outcomes, to have their voices heard by decision makers, and to be a vital part of their communities.

Recommendations for community organizations

Continue to advocate for funding to include literacy-rich activities in programming for all age groups including family literacy programming which is the gateway to learning for adults who experience marginalization.

That said, the most effective and efficient ways to reduce the cost of low literacy, both dollars and human costs, are to provide literacy materials and supports early in the lives of children.

⁷¹ Richard Desjardins and Arne Jonas Warnke. *Ageing and Skills: A Review and Analysis of Skill Gain and Skill Loss Over the Lifespan and Over Time*. OECD Working Papers No.72 (2012)
https://read.oecd-ilibrary.org/education/ageing-and-skills_5k9cswv87ckh-en#page1

Literacy is the single most important skill for success in living, learning and working.



Conclusions

Literacy is the single most important skill for success in living, learning and working. It begins at birth and, once built, should last a lifetime. An individual's level of literacy contributes to their capacity to learn, adapt and change and correlates directly with their social and economic outcomes including income level, employment history, health and civic engagement. This is not news – these findings have been falling out of social experiments for decades.

And yet, in Alberta two in five young children (of those assessed by the CBE in 2021-22) lacked reading readiness; two in five youth aged 16-24 years lacked adequate reading skills to meet the needs of the jobs in the economy consistently well or to learn effectively in post-secondary education; and more than two in five working aged adults had low or poor literacy skills in the last adult literacy survey.

While Alberta can and does pride itself on its education systems, and the above average results of students in these systems, too many individual students are not getting the literacy instruction they need. Alberta expects to spend \$14.4 billion on K-12 and post-secondary education in fiscal year 2023-24.⁷²

The failure of education systems to mitigate the learning deficits of its youngest students and to reduce the number of graduates with low and poor literacy skills costs Alberta's health care, social assistance and justice systems. It also hinders the diversification of Alberta's economy as jobs are automated and become more knowledge intensive.

While much of the solution to this pervasive and persistent literacy problem requires the education and post-secondary systems to change what, how, when and for whom they go about their mandates, this will not be enough. Alberta's literacy problem belongs to all Albertans – they pay for it through taxes and social cohesion issues. The solutions presented in this report can go a long way to solving the literacy problem for individuals at all ages, for employers and for society.

⁷² <https://www.alberta.ca/expense.aspx>

Appendix

Appendix 1

Three comparable surveys done by the Organisation for Economic Co-operation and Development (OECD) underpin the adult literacy data provided in this paper.

- 01 2011 Program for the Assessment of International Adult Competencies Survey (PIAAC)
- 02 2003 International Adult Literacy and Life Skills Survey (IALSS or ALL)
- 03 1994 International Adult Literacy Survey (IALS)

Literacy Levels and what they mean

Level 1	Level 2	Level 3	Level 4	Level 5
0-225 pts	226-275 pts	276-325 pts	326-375 pts	376-500 pts
Tasks require the respondent to read short pieces of text to find a single piece of information. Knowledge and skill in recognizing basic vocabulary, determining the meaning of sentences and reading paragraphs is expected.	Tasks require basic matching between the text and information, along with some paraphrasing and making low-level inferences.	Texts are lengthier and denser. Tasks require interpreting and evaluating multiple pieces of information.	Tasks are usually multi-step, requiring a synthesis and integration of information, as well as making complex inferences.	Tasks require a search for, and integration of, information from a variety of sources and making high-level inferences. Application and evaluation of conceptual ideas may also be required.

Source: PIAAC, 2013

Appendix 2

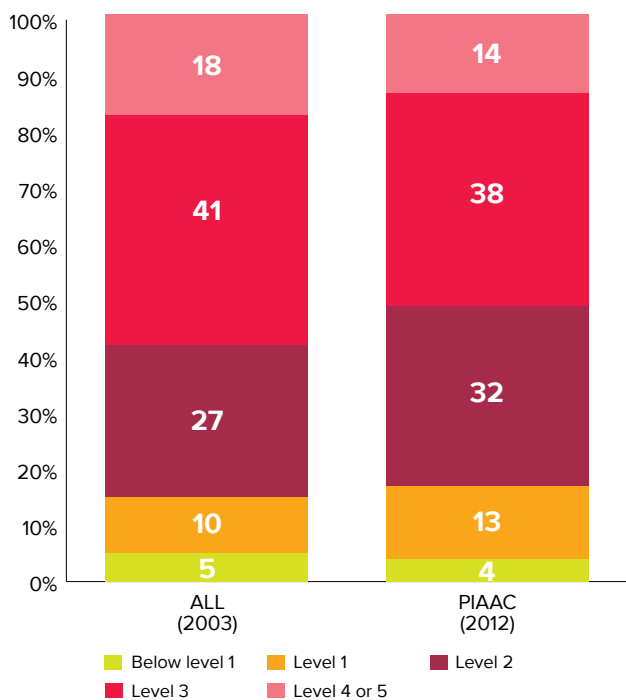
Standardized Testing Results, Alberta Grades 6, 9 and 12⁷³

2021-2022					PREVIOUS 3-YEAR AVERAGE*				
Subject Grade %	Acceptable	Excellence	Total	Below Acceptable	Acceptable	Excellence	Total	Below Acceptable	Increase in Below Acceptable
ELA 6	76.1	18.9	95.0	5.0	83.2	17.8	101.0**	–	
Math 6	64.1	12.6	76.7	23.3	72.5	15.0	87.5	12.5	10.8
ELA 9	69.6	12.9	82.5	17.5	75.1	14.7	89.8	10.2	7.3
Math 9	53.0	16.7	69.7	30.3	60.0	19.0	79.0	21.0	9.3
ELA 30-1	78.8	9.4	88.2	11.8	86.8	12.3	99.1	0.9	10.9
ELA 30-2	80.8	12.3	93.1	6.9	87.1	12.1	99.2	0.8	6.1
Math 30-1	63.6	23.0	86.6	13.4	77.8	35.1	112.9**	–	
Math 30-2	61.5	12.8	73.3	26.7	76.5	16.8	93.3	6.7	20.0

Source: Calgary Board of Education Annual Education Results Report 2021-22
 * Standardized testing was cancelled in 2019-20 and 2020-21 due to the pandemic.
 ** No explanation was given for the sum being more than 100%

Appendix 3

Literacy – Averages and Proficiency Levels of Population aged 16 to 65 in ALL and PIAAC, Canada, 2003 and 2012



Sources: The Programme for the International Assessment of Adult Competencies, 2012 and International Adult Literacy and Skills Survey, 2003.

⁷³ Calgary Board of Education, *Annual Education Results Report: 2021-22* (Calgary: Calgary Board of Education, 2022).

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