



The Future of Lifelong Learning

Designing for a Learning-Integrated Life

Paper for Waterloo Region Future of Work & Learning Coalition



Waterloo Region Future of Work & Learning Coalition

Capstone Partner



Executive Partners



Titan Partners



Associate Partners



Community Builder Partners



TABLE OF CONTENTS

The Future of Work & Learning Coalition	2
Introduction	4
The Growing Call for Lifelong Learning	6
Defining the Learning-Integrated Life and Mapping the Current Landscape	9
Mapping the Lifelong Learning Landscape.....	10
What forms does lifelong learning take?	10
Where is lifelong learning happening and who is participating?	11
What factors and trends influence access to lifelong learning?	12
What is the present and future demand for lifelong learning?.....	13
The Vision: The Lifelong Learning System of the Future.....	16
Enabling the Learning-Integrated Life	17
The Profile of a Learning-Integrated Life.....	21
Where to Go from Here? Conclusions and Recommendations.....	25
Recommendations.....	26
Conclusion.....	30
Endnotes	31

Introduction

Waterloo is doubling down on the Future of Work, working together as a community to figure out not only how to attract and retain talent, but to develop the talent the region needs. The Waterloo Region Future of Work & Learning Coalition came together in 2019 to bring together organizations eager to develop and cultivate talent in the region, including the participation of: Communitech, Manulife, TD, Wilfrid Laurier University, Deloitte, Morneau Shepell, the University of Waterloo, the City of Kitchener, Conestoga College, D2L, the Greater Kitchener-Waterloo Chamber of Commerce, the Region of Waterloo, Waterloo EDC, Axonify, the City of Cambridge, the City of Waterloo, Plum.io, Vidyant, and the Workforce Planning Board of Waterloo Wellington Dufferin.

The coalition-based approach the region is taking recognizes that the challenges presented by the future of work cannot be tackled by any one organization—and that collaboration is needed across government, industry, and academia to research and test solutions to meet these challenges. As the Coalition works together and begins to collect research and insights, they will open-source learnings and best practices within the community, in addition to syndicating their models for use in other regions across Canada.

Rapid technological advancement is one of several “mega trends” set to reshape the future of work—along with demographic shifts leading to an aging workforce and slowing or declining labour supply, climate change’s range of effects on different sectors and workers, innovation in business and how this changes demand for specific skill sets, and uncertain trade patterns impacting supply chains and related jobs.ⁱ These mega trends and the interactions between them will permeate all aspects of our society, placing an increasing importance on the education and workforce development sectors to prepare working individuals for the jobs of both today and tomorrow.ⁱⁱ

The proposed remedy to this challenge has been “lifelong learning”, or in other words, the learner’s ongoing, voluntary, and self-motivated pursuit of knowledge and skills development throughout life, whether for personal or professional reasons. Beginning with education at the primary and secondary level, lifelong learning is putting greater focus on the opportunities for education and training through adulthood (pre-, during, and even post-employment) that lead to specific outcomes of employability, career fulfillment, and personal growth. Lifelong learning opportunities include both formally credentialed and informal, unstructured forms of learning.

In practical terms, lifelong learning is not clearly understood as a concept, nor is it obvious what an effective system of lifelong learning really looks like. For instance:

- What forms does lifelong learning take?
- Where do systems currently exist and for what purpose?
- How can our systems of education, training, employment, and workforce development be adapted to offer more opportunities for lifelong learning calibrates to the skills demands of employers and the needs of workers?

This last question is even more important in the context of the pandemic as employers continue to adapt to a digital-first world and build a resilient strategy, and workers think through what skills they need to develop to prepare for the future.

This whitepaper seeks to inform and spark debate around one of the central issues of the future of work and learning—lifelong learning. The first half of the paper will define and map the current landscape for lifelong learning and briefly summarize the growing body of evidence and thought leadership around why it is necessary. The second half will offer an ambitious vision for a future system of lifelong learning as a point of departure, with practical conclusions and recommendations for policymakers, industry leaders, educators, and other stakeholders.





The Growing Call for Lifelong Learning

The world in which we accumulate and deploy our skills—formally in the workforce, and informally in society—is ever changing, and that pace of change is constantly accelerating. While we cannot forecast the future with any certainty, we know that working individuals are already changing jobs or vocations more frequently in their careers, by choice and out of necessity, due to technological advancement. And today, employability is determined less on general credential attainment and more on the ability to demonstrate the necessary skills for the job.

While academic qualifications remain an important consideration when assessing job candidates, a growing list of global firms no longer require a postsecondary degree as a prerequisite to a job. As of 2021, the list had grown to include Google, Apple, Shopify, Tesla, Slack, Telus, TouchBistro, Home Depot, Hilton, and the Bank of America, and cut across sectors ranging from technology and finance to consumer retail and publishing.ⁱⁱⁱ IBM's Vice President of Talent reported that about 15 per cent of the company's hires in 2017 did not have a four-year undergraduate degree, with hiring managers prioritizing hands-on experience through coding boot camps and vocational training.^{iv}

15% of IBM new hires did not have a four-year college degree in 2017

Along with new hiring trends is an explosion in the sheer number of distinct skills demanded of the workforce along with the rapid advent of entirely new occupational types, such as digital marketing specialists and data architects. In earlier models of education, **hard skills**—those professional or technical skills that are often job-specific—may have been able to sustain an individual worker for most of their career. But with the proliferation of new technologies, the rise of e-commerce, and the globalization of trade in goods and services, digital literacy and technological savvy is becoming more important than ever and is a set of skills that requires continuous learning.



The Kitchener-Waterloo Region has for decades been at the forefront of developing emerging technologies, leading research in Canada on nanotechnology, bioengineering, quantum computing, and more. For the second year in a row, Waterloo can claim the two fastest growing tech companies in Canada, according to Deloitte's Technology Fast 50 rankings.^v The region's three post-secondary institutions have demonstrated agility and resilience in looking ahead to the trends shaping the way in which we work, and have transformed their approach to teaching and learning accordingly. The University of Waterloo boasts the largest concentration of mathematical and computer science talent globally, operating the largest post-secondary co-op program in the world. Wilfrid Laurier University's School of Business has Canada's largest business co-op and the first 12-month MBA program. And Conestoga College Institute of Technology and Advanced Learning is ranked among the top Ontario colleges and has a renowned School of Engineering and IT and Institute of Food Processing Technology.

Employers are also expecting that prospective new hires also bring with them strong **durable skills**: the cognitive and non-cognitive skills that range from essential skills such as literacy and numeracy, to higher order skills such as critical thinking, creativity, emotional intelligence, and collaboration.^{vi} The 2020 Business Council of Canada Skills Survey found that employers are primarily looking for mid-level and entry-level hires to have strong abilities in collaboration, teamwork, and relationship building. Employers expected entry-level hires to also be able to demonstrate strong skills in communication, problem solving, and resiliency in the workplace.^{vii} For employers, these durable skills are signals that employees can adapt and learn as business needs change. For employees, durable skills are readily transferable across jobs and careers with greater lifelong relevance. For these reasons, researchers describe durable skills as the core skill set for the workforce of the future.^{viii}

Our global systems of education and workforce development are changing — and will increasingly in the years to come — as individuals and employers recognize the need to continuously invest in building both hard, and durable, sets of skills throughout their careers. Individuals need access to a learning system that will support them at different life stages, be easily accessed throughout their career, and be much more flexible — with entry and exit points based around skills — rather than time spent in a classroom working towards a general credential. This learning system also needs new models of instruction, such as shorter-term or modular programs, stackable credentials or badges, modified and adaptable curriculum, and a greater use of self-directed and online learning. It will demand a more active employer role through internal training and development, and closer connections with postsecondary, labour, and government partners. More importantly, the individual working learner must feel empowered with a learning mindset to seek out continual learning opportunities and find agency over their continued development, learning pathways, and work options.

For many global institutions, governments, researchers, and commentators, a system with these characteristics is described in one well-worn term: **lifelong learning**.

The following sections of this paper seek to define lifelong learning and map the current landscape, paint a vision for continual learning, and offer some practical recommendations for realizing the vision.

SUMMARY

1. Substantial changes in the landscape for skills and work will put a premium on “durable skills,” which are skills described as most readily transferable across jobs and careers.
2. As education, training, and workforce systems change to adapt to the shortening shelf-life of skills, many global institutions, governments, and commentators are pointing to “lifelong learning” as a solution.



Defining the Learning-Integrated Life and Mapping the Current Landscape

While lifelong learning is a term often used and widely recognized as a solution to the future of work challenge, there has been little agreement on how it is defined, and inconsistent evidence on how much of it is currently happening, where, and by whom.

Lifelong learning has been defined as incorporating all learning activity “from the cradle to grave.”^{ix}

This includes:

- Credentialed education at the primary, secondary, and postsecondary levels;
- Structured adult education and training with or without a formal credential; and
- Unstructured learning and skills development accumulated through daily life and work.^x

For the learner, lifelong learning is ongoing and often voluntary and self-motivated — offering opportunities for upskilling, retraining, and professional development to stay relevant and progress at work, as well as life fulfillment and personal growth.

D2L has reconceptualized this as a “Learning-Integrated Life” — where individuals are always in a learning mindset and intensive and episodic opportunities for learning are woven through the fabric of our lives; preparing us for successful careers and rich life experiences. A Learning-Integrated Life belies a strong economic imperative, as lifelong learning — when easily accessed and effectively delivered — has proven to increase earnings and help the unemployed return to work, while improving performance, productivity, and employee retention.^{xi} It also reflects the intrinsic value of learning in our lives and to our wellbeing, as shown in studies that identify clear benefits to mental and physical health, self-confidence, life satisfaction, and civic participation.^{xii} And importantly, learning has the potential to be a great equalizer if it is inclusive; alternatively, it can also widen gaps if it is not.

At D2L, we believe the future will demand a “**Learning-Integrated Life**”—where individuals are always in a learning mindset, and intensive and episodic opportunities for learning are woven through the fabric of our lives; preparing us for successful careers and rich experiences.

For the purposes of this paper, however, the analysis will focus on a certain subset of the lifelong learning continuum: adult learners. This subset encompasses all individuals in the workforce, including gig workers, those in part-time or contract employment, as well as those who are unemployed but intend to return to work, following any “upfront” learning at the primary, secondary, or postsecondary levels (see Figure 1).

Mapping the Lifelong Learning Landscape

With that definition and focus in mind, this section will address some key questions to better map the lifelong learning landscape.

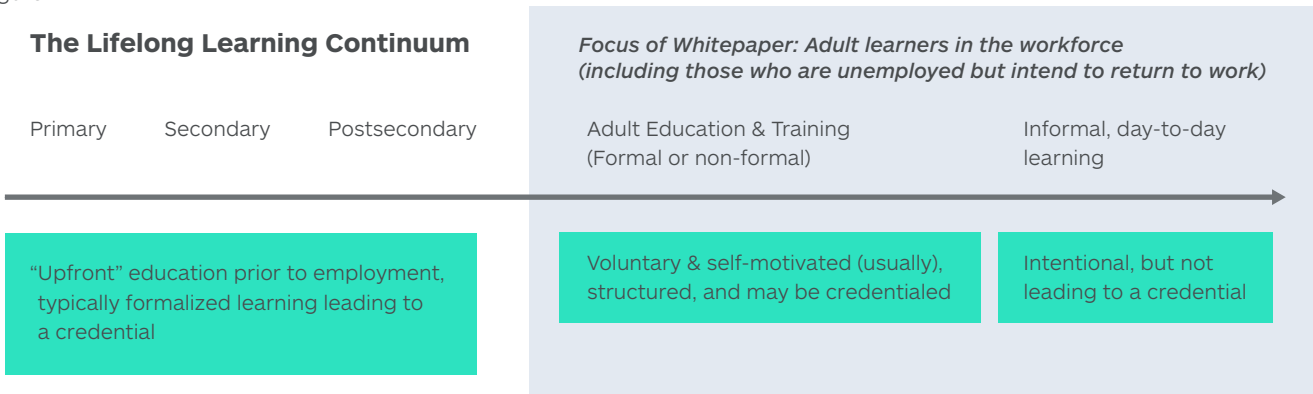
What forms does lifelong learning take?

While efforts have been made to describe broad categories of lifelong learning, there is no widely recognized typology of the forms lifelong learning can take.

The following broad categories are adapted from the OECD’s Skills Strategy Framework:

- **Formal education and training towards a credential**—learning that leads to formal qualifications at primary, secondary, postsecondary, or tertiary level (including the trades and other formal, apprenticeable recognized credentials or certifications).
- **Structured, semi-formal education or training**—learning that may or may not lead to a formal qualification, such as on-the-job training, open courses, unassessed training, in-class courses or private lessons (e.g. coding bootcamp), seminars, or workshops.
- **Informal learning through work and life**—learning that is unstructured, unintentional, or both, resulting from daily activities related to work (e.g. learning to use Salesforce on the job), family, or leisure (e.g. coaching your child’s soccer team).

Figure 1



There are, however, many types of learning generally available in many countries that are oriented to adult skills development and employability. Some of the most common forms include:

- **Higher education programs for adult learners** offered through a university or college to returning learners on a full- or part-time basis, that lead to a formal degree or certificate. These programs typically imply a skill and knowledge set and aid in advancement within a current occupation or to transition to another (e.g. MBAs, graduate studies, continuing education, and vocational programs).
- **Employer-specific corporate training** is provided to employees and new hires either directly through human resources and training departments or, sometimes, a third-party trainer. The majority of training tends to focus on employee onboarding, job-specific and technical knowledge and skills, or compliance training (e.g. health and safety, accessibility, or anti-harassment).
- **Industry-wide training and credentialing** includes sector-specific training and certification provided or coordinated by a professional association or licensure board; typically leading towards a professional designation (e.g. for professional accountants, financial analysts, human resource specialists, or professional engineers).
- **Trade association and union-led training** ranges from quick learning courses for skills upgrading, compliance training, and professional development for non-trade professions (e.g. teachers and education staff, hospitality workers, and healthcare professionals), to more programmatic training, including on-the-job apprenticeships that lead to a technical certification or journeyman status.

- **Public adult education and training programs** target unemployed or hard-to-employ individuals through public sector workforce development systems. These programs often focus more on basic skills development (e.g. literacy and numeracy), secondary school equivalency, language training, youth employment, and career-bridging or mid-career retraining.
- **Private career colleges** offer shorter, intensive, training programs paid by the learner to transition to specific occupations (e.g. truck driving or cosmetology).
- **Providers of online learning repositories**, including massive open online courses (MOOCs), cover a wide variety of academic disciplines taught by university faculty often in a self-paced model and other private entities that offer short, career-focused, video-based content for self-directed learning through paid subscriptions to the archive.
- **Other rapid upskilling programs** are newer models of learning that are typically paid for by the learner based on outcomes and focused on specific skill sets. For example, bootcamp-style programs for digital economy jobs (e.g. software development, UX design, and tech sales and marketing) offered by for-profit companies with income-based repayment after the learner reaches a pre-determined salary threshold.

Where is lifelong learning happening and who is participating?

Canada has a larger share of adults and employers who participate in job-related training compared with other OECD countries. Just over half, 52 per cent, of Canada's working-age population participated in at least one job-related training activity within the previous 12 months, according to the 2012 OECD Survey of Adult Skills.^{xiii} This compares with an OECD average of only 41 per cent of adults.^{xiv}

That same survey found that 30 per cent of Canadian adults who wanted to train more cited ‘being too busy at work’ as the main barrier preventing them from doing so. Another 17 per cent reported that they do not have time due to childcare and family responsibilities, and some 12 per cent said the course was not offered at a convenient time or place.^{xv} Research from the Conference Board of Canada has also noted a shift away from formal classroom training towards informal learning, as an increasing number of employees initiate their own self-paced e-learning.^{xvi}

Despite having high coverage in adult learning compared to other countries, Canada performs relatively poorly in inclusiveness. In particular, participation rates are low among low-skilled workers, low-waged workers, older workers, the unemployed, those working in small and medium-sized enterprises (SMEs) and those in temporary work.^{xvii} More needs to be done to expand access to learning for all ages of workers, regardless of recognized skill level or employment tenure.

What factors and trends influence access to lifelong learning?

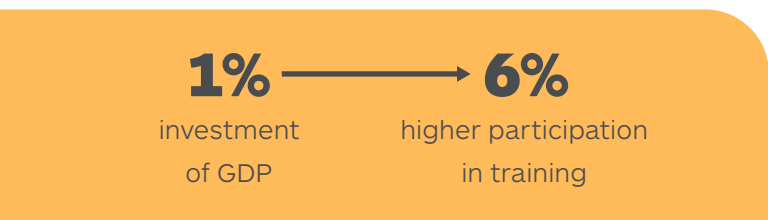
Government investment to scale availability of learning is an important driver of higher participation rates—an increase in investment of one percent of GDP is associated with a six percent increase in participation.^{xviii} Developing access that is low- or no-cost to participants is also an important consideration. Countries, such as those in northern Europe, with higher rates of public spending on adult learning, have substantially higher participation, less inequality in access, and better outcomes.^{xix}

It is important to note that simply lowering financial barriers and creating greater access to low- or no-cost training does not automatically result in higher rates of participation among lower-skilled workers. For example, massive open online courses (MOOCs) are plentiful and many reduce the financial barrier by providing learning at low- to no-cost, but research has shown that they tend to support learners who already have access to education—generally highly credentialed and skilled individuals, who also tend to be young, employed, and from developed countries.^{xx}

A greater driver of participation rates amongst all workers is the ability to show value in the learning where it is not explicit. When learning opportunities are explicitly linked to the value of outcomes, such as increased income, continued employment, and relevancy in a changing global economy, there is more appeal for those individuals most in need of training identified above.

For Example: University of Waterloo Partnership on Digital Skills

The University of Waterloo has partnered with Stratford School of Interaction Design and Business, Vidyard, Larry Smith (Director and Founder, The Problem Lab), Kiite Academy and Shopify to deliver mini-courses on digital skills.^{xxi} The “mini-courses” introduce students to the fundamental concepts of website development, digital and video marketing, and problem analysis. The course bundle was first offered to all Waterloo students beginning May 2020 at no charge, and allowed students to take all courses, or sign up for them individually, with no previous experience required.



For Example: Conestoga College Partnership on Construction Skilled Labour

A new program launched in August 2020 through Conestoga College, St. Leonard's Community Services, and Brant Skills Centre is helping address a shortage in skilled labour. Construct Your Career Brantford provides free training to prepare job seekers for a career in the construction sector.^{xxii} Participants complete eight weeks of training that includes strengthening essential skills in math and communications, as well as study and practice in carpentry, plumbing and electrical trades to receive a Construction Foundations certificate from Conestoga. Industry-recommended credentials such as Working at Heights and First Aid are also included, and participants are coached in resume building and interview skills. Tools and other essential equipment are provided free of charge to help further support participants as they start their careers. The program ends with an additional two weeks at a job placement.

What is the present and future demand for lifelong learning?

The demand for lifelong learning can be evaluated through different lenses, but in aggregate it appears to be strong and growing in both the short-term and the future. On a macroeconomic scale, up to 375 million workers across the global workforce — or **14 per cent of all workers** — may need to change occupations and learn new skills by 2030.^{xxiii} The share is much higher in Canada, with over 36 per cent of jobs in Canada's labour market highly susceptible to automation, containing 50 per cent or more tasks that could technically

be automated, based on McKinsey analysis.^{xxiv} Analysis by the Brookfield Institute of Innovation and Entrepreneurship found that small economies specializing in manufacturing or mining, quarrying, and oil and gas extraction are the most susceptible to automation. Cities and towns with a large hospital, post-secondary institution or public sector presence are less susceptible. Larger, more diverse labour markets are more likely to reabsorb displaced labour and weather potential automation impacts.^{xxv}

As technology takes over, and reshapes certain job tasks, the demand for people to perform other tasks will increase — and to build the skills to do these new jobs, people need to build their digital literacy and durable skills. The World Economic Forum (WEF) has reported that 54 per cent of employees will need reskilling and upskilling by 2022. Of these, 35 per cent will require up to six months of training, 9 per cent will need six to 12 months, and 10 per cent more than a year.^{xxvi} The WEF findings make clear that learning is not an issue for a distant future, but an immediate need for employers in their business strategy and workforce planning.

54%
of employees will need
reskilling and upskilling
by 2022, according to the
World Economic Forum

C-suite and human resource leaders are recognizing the implications of the demand for lifelong learning. Deloitte's annual global human capital survey of 10,000 leaders from across countries and industries has long identified workers' desire and need for lifelong learning to address the decline in the half-life of skills. The 2020 trends report took this a step further recognizing that organizations may be ill served to the currently prevalent narrow approach to reskilling, which consists largely of attempting to precisely tally current skill needs, prescribing

discrete training programs to suit, and then doing this again when needs change.^{xxvii} Instead, Deloitte recommends a system that invests not just in workers' near-term skill needs but also in their long-term resilience, developing their capabilities as part of work and embracing a dynamic relationship with the organization's broader ecosystem.^{xxviii}

For Example: TD Bank invests in employee training to support future bank needs^{xxix}

TD is adapting to the future of banking by transforming its branch strategy through a program called Future Ready. A key premise of The Future Ready strategy is centred on the idea that branches co-exist with the bank's other channels and digital platforms. Customers now expect convenience and personalized experiences in a multi-channel context, and want to be able to have their banking experience when and where they want, on the platform of their choice. TD is transforming its branch strategy by giving its people more tools, more resources and less administration, so they can spend more time having important advice conversations with customers. It has also ramped up advice training and coaching and evolved how success is measured for branch employees.

The program seeks to help create more differentiation and specialization by role, while at the same time establishing smoother career paths for branch employees. New behavioural metrics encourage employees to deliver helpful, knowledgeable, and proactive advice - the kind of advice and personalized attention to detail that today's customers are increasingly demanding.

For Example: Manulife instills learning culture with Manulife University^{xxx}

Manulife is embracing the future of modern workplaces to include continuous learning with its Manulife University program designed to:

1. Drive a mindset shift through knowledge and awareness of technologies among engineering employees
2. Build skillsets through practical use of tooling and methods via hands-on labs
3. Apply newly acquired skills by performing a value-driven proof of technology for two weeks leveraging the newly acquired knowledge

The program, driven by teams of Manulife engineers, was initially developed to ensure all existing engineering employees were effectively trained in the modern technology stack outlined in Manulife's engineering roadmap. Following the success of the initial program, Manulife focused on expanding to "masterly" level expansion courses such as End to End Software Delivery, Data Engineering, Quality and Performance Engineering, Reliability Engineering, Security Engineering, and Platform Engineering.

Since 2018, Manulife University instructed over 1200 employees globally, with over 900 in Canada alone. The learning culture is so pervasive in Canada that most employees are repeat students attending the various course offerings. This shift has resulted in Manulife's Engineering employees being increasingly open to

tackling larger challenges as part of their workday, willingness to experiment with new technologies and approaches, and embracing research “spikes”. Since early 2020, the Manulife University program has shifted to a fully remote offering, allowing the program to be accessible to all employees regardless of office location.

There is strong immediate and long-term demand for lifelong learning which is reflected in macroeconomic trends across labour markets, organizational needs expressed by employers, and skills gaps for many individuals in the labour market. The OECD’s Programme for the International Assessment of Adult Competencies (PIAAC) assessment of adult skill levels across member countries paints a bleak picture. On average, across OECD countries over 25 per cent of adults are able to complete only very basic reading and mathematical tasks, while 37 per cent have very limited or no digital problem solving skills.^{xxxi} Yet, as noted above, the groups of disadvantaged workers most in need of learning opportunities—the low-skilled, older workers over 55, the unemployed, low-wage earners, and those working for small- and medium enterprises (SMEs)—consistently receive less training and development.

Where training and development is currently provided to working-age adults, participation is highest among the highly educated and lowest among the most disadvantaged and at-risk workers. Training programs are often poorly calibrated to labour market need and organizational skills gaps. For training offered outside of an employer or trade association, the options available generally lack the job relevance necessary to motivate working individuals to participate voluntarily. Transitioning from this current state to the lifelong learning imperative will require a major transformation in the systems of education and workforce skills development.

SUMMARY

1. Creating a continuous system of learning, both inside and outside of a workplace setting, is critical to enabling individuals to keep up with the skill shifts of the workforce throughout their careers.
2. There are many types of learning generally available across countries for adult skills development and can be offered through postsecondary education institutions, employers, trade associations and unions, public programs, and private providers.
3. Mapping the landscape for lifelong learning reveals strong demand amongst individuals in the workforce, but also shortfalls in adult learner participation and motivation.

The Vision: The Lifelong Learning System of the Future

A first step in the transformation of education, training, and skills development is establishing a clear vision for the lifelong learning system of the future.

At the heart of this vision is the idea of a **Learning-Integrated Life** — where every person's path through compulsory education and working career is a continual journey, with ongoing opportunities for learning and skills development as enablers of employability, success, and purpose. A Learning-Integrated Life, as conceptualized by D2L, requires a permanent learning mindset, and access to a system of learning to capitalize on that mindset.^{xxii}

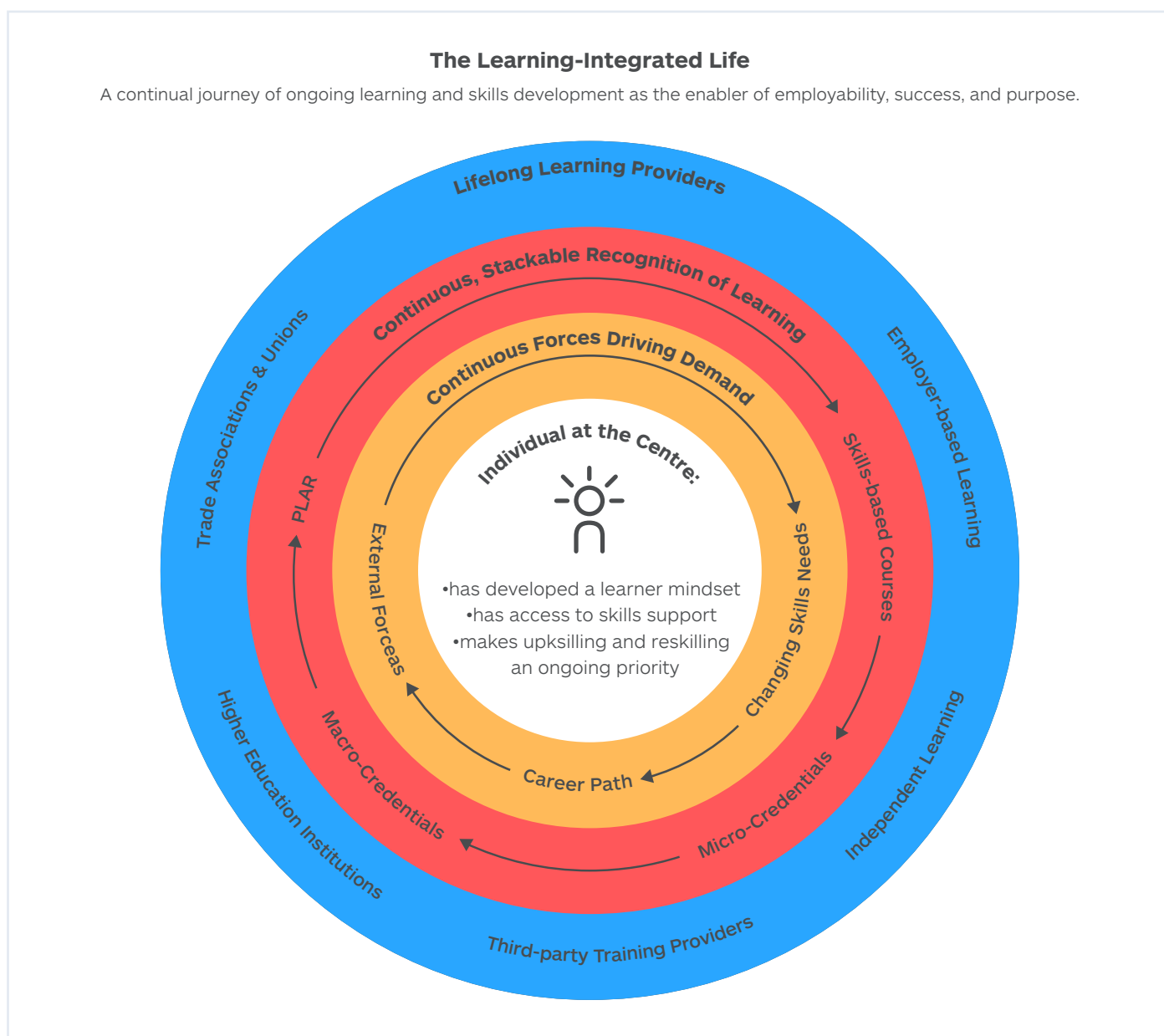


Image: D2L (2020) *The Future of Lifelong Learning: Designing for a Learning Integrated Life*

For the most part, today's global society is not one of constant learning. Individuals are in a learning mindset through their formative childhood years and pre-employment education (i.e. elementary, secondary, postsecondary). Once in the workforce though, mindsets shift from one of a learner to one of a worker—typically not reengaging in intentional learning unless mandated by employers or by necessity (e.g. unemployment). Skills and knowledge we obtain over our careers and life tend not to be recognized explicitly as learning, but more as something that happens to us—it is passive rather than understood, proactive learning.

For individuals who do have a learner mindset while in the workforce and choose to engage in intentional, ongoing learning, their ability to do so is hampered by a complex and fragmented learning system. Traditional postsecondary education has offered degree or diploma programs requiring years of commitment to complete, or continuing education programs that has not always proved relevant or beneficial to the workplace. Access to these programs is typically self-driven and self-financed—often expensive and without a clear return for the investment. For at least the last decade, Canadian employers have spent less than their counterparts in the United States on training employees.^{xxxiii} Moreover, availability of employer-delivered learning opportunities has traditionally been limited by the capacity of the human resources team to manage a program, often restricting learning to the job skills of most need to the employer at that time and compliance training.

The Learning-Integrated Life necessitates we break down the cultural mindset barriers of working versus learning and build an accessible system of lifelong learning opportunities that give agency to individuals to control their learning pathways and thus their career progression.

Enabling the Learning-Integrated Life




Traditionally, we separate life into three distinct phases: learning, work, and retirement. However, it is apparent now that learning must be a lifelong endeavor rather than an independent phase. Creating learning as a lifelong endeavor is not just the same traditional learning for a longer period of time and more often. It is a fundamental shift in thinking and approach.


To realize this vision of continual learning, society and our existing systems of learning must encourage the mindset for a Learning-Integrated Life. The benefits of a system of lifelong learning must be understood and shared among individuals and employers, across society, and the economy at-large.


Armed with a learning mindset, individuals require a learner-centric system of lifelong learning designed with entry points based on their existing skills, experiences, knowledge, and abilities—along with exit points based on their personal learning pathway. It must be flexible enough to meet varying life circumstances, including family and work commitments, and affordable to ensure the benefits are inclusive. The predominance of the traditional degree as the primary labour market signaling function is changing as employers increasingly seek specific, verifiable skill sets in potential employees. A Learning-Integrated Life will increasingly value the ongoing, stackable accumulation of skills that can be delivered by different types of institutions: postsecondary education, employers, associations, etc.





Achieving a Learning-Integrated Life requires a paradigm shift in our current models of education and skills development. A lifelong system of learning must be guided by a series of practical principles:

-  **Affordable and accessible for learners**, whether through employer-funded training, publicly available skills development programs, or individually accessed courses, learning must be readily available and at low- or no-cost to enable participation by lower-skilled and disadvantaged workers.
-  **High-quality, personalized and flexible**, where learners can map their own unique career pathway, access learning opportunities that are not “one-size-fits-all”, progress based on skill mastery rather than seat time, and participate in a continually improving learning system.
-  **Motivated and encouraged**, through a “continual learning culture” that is valued by society and promoted and incentivised to learners by employers, educators, society, and public policies.

 **Data-driven**, informing decisions from a systems-level down to unique learner pathway to ensure available learning opportunities will have value in the job market and learners will know which options are most appropriate to their community.

 **Technology-enabled**, leveraging the emergence of new, scalable digital tools that can enhance access to learning and improve assessment, while offering educator and learner analytics, personalization at scale, improved success rates, and greater cost effectiveness.

 **Assessed against learning outcomes**, where prior learning assessment and recognition (PLAR) and ongoing tracking of learner progress and outcomes in skills development is consistently applied across the system.

 **Responsive**, with learning opportunities that adapt as learner demands, employer needs, and workforce trends continue to rapidly evolve.

Examples:

The Canada Training Benefit for Working-Age Adults

In early 2019, as part of a national innovation and skills agenda, the Government of Canada introduced the Canada Training Benefit, an integrated suite of worker assistance benefits that directly cover education and training costs, as well as income support and job protection needed during time off for reskilling. The program was designed to respond to the evolving nature of work.^{xxxiv} The centerpiece is a tax benefit for working-age adults aged 25 to 64, which accumulates over time and can be applied against 50 per cent of tuition expenses for eligible education and training, taking inspiration from Singapore's SkillsFuture Credit program and to worker-controlled lifelong learning and training accounts proposed in the United States.^{xxxv} Workers can also access four weeks of income support benefits to help cover costs, and job leave provisions to ensure employment remains secure while taking time off for training.

Wilfrid Laurier and Communitech partner on Framework for Future-Proofing Communities^{xxxvi}

Wilfrid Laurier University and Communitech partnered to deploy the first truly agile skills development program in Canada, connecting community, industry, and post-secondary education. The partnership focused on developing skills for mid-career workers to better prepare them for change in their careers and help employers as they build a more resilient workforce. Training opportunities built and offered through this partnership were focused on two of the most in-demand skill areas for today's workforce: sales and communications. From August 2020 to February 2021, 30 mid-career employees developed their skills through a combination of sprint learning, offered through Communitech Academy, and longer-term immersion learning, offered through Laurier. Through the Communitech Academy, learners gained skills they could apply across industries through six sessions in three weeks. In Laurier's immersion learning, they learned skills through a combination of in-class and hands-on learning with the help of Laurier professors and practitioners who condensed a semester-long for-credit course into six weeks. These opportunities were tested with professionals from almost 20 employers in the Waterloo Region.

Examples Continued:

C3 Innovation Labs Experiential Learning in Kitchener-Waterloo^{xxxvii}

C3 Innovation Labs (C3IL) is a hub of socially innovative and community-engaged experiential learning opportunities in the Faculty of Arts at Wilfrid Laurier University. C3IL creates these opportunities with a unique partnership among the three 'Cs'; the Laurier campus; the tri-cities (Waterloo, Kitchener and Cambridge); and local communities.

C3IL leverages partnerships established with the cities of Kitchener, Waterloo, and Cambridge to offer its CityStudio courses and the Department of Geography and Environmental Studies' Capstone in Urban Sustainability Project (CUSP). In CityStudio courses, Laurier students learn alongside municipal professionals on current issues in Waterloo Region to create solutions that lead to positive change in the community. In 2018, students in SE330B: Social Innovation in the City, a CityStudio course, engaged in a community project for the City of Kitchener. They were tasked with testing assistive software on behalf of the Canadian National Institute for the Blind at the Charles Street bus terminal in downtown Kitchener. The software, available for download on smartphones, interacts with beacons that can be placed in shops, restaurants, and other public spaces to help people with vision loss successfully navigate the space.

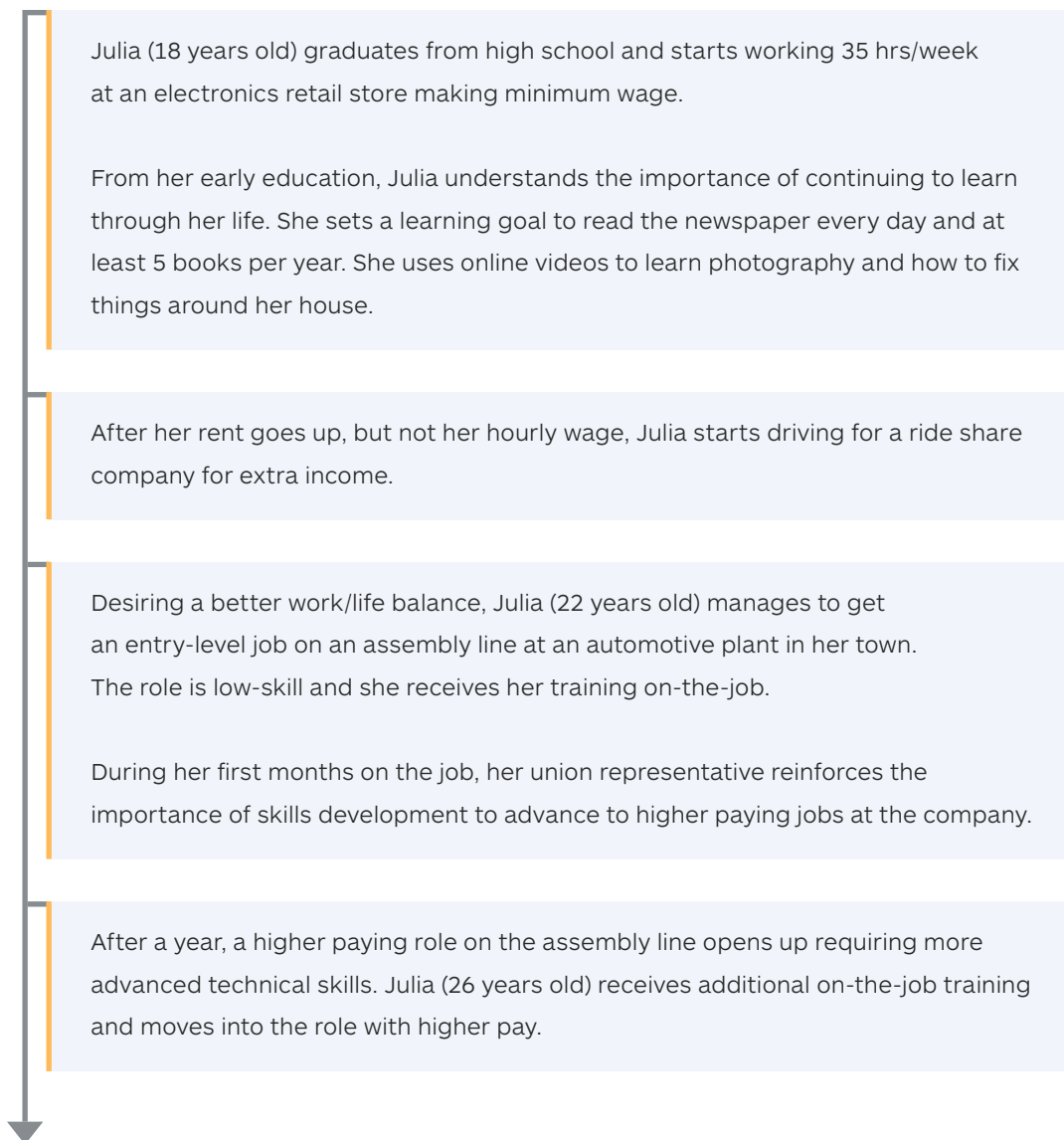


The Profile of a Learning-Integrated Life

A broad lens on systems-level structures, policies, and partnerships for lifelong learning is essential. However, it is equally important to consider the learner's lens, whereby each individual will increasingly chart their own unique work and learning pathway to sustain a 40- or 50-year career.

This section offers an example of an individual's Learning-Integrated Life. It is not meant to be comprehensive, but rather to provide a scenario-based model of the Learning-Integrated Life supported through an effective system of lifelong learning.

A Learning-Integrated Life



A Learning-Integrated Life Continued

Julia's employer announces her factory is modernizing the technology on the assembly line and will require 30 per cent less labour over the next year.

Desiring better job security, Julia (30 years old) wants to move into a leadership role. She inquires with HR but is missing two core skill requirements—business writing and relationship management.

Her employer does not offer training for these skills internally, but Julia has an Individual Training Account which is funded with contributions from her employer. Julia seeks training outside of her employer.

The local community college offers self-paced, competency-based education (CBE) courses online for both skillsets. She enrolls and completes them within three months, in part because she already possessed much of the knowledge from prior experiences. Julia earns a verifiable micro-credential for her learning.

Four months after completing her courses, Julia (31 years old) attains a leadership position on the nightshift at a food processing plant in the neighbouring town.

Julia (32 years old) wants to move off the nightshift and into a salaried position. In her leadership role, she works with the quality assurance (QA) team and would like to move into that field.

A regional university has an online credential in QA which is mastery-based and aligned to specific skills. Julia uses Prior Learning Assessment and Recognition (PLAR) to demonstrate her existing skill sets, which she learned on the job. She tests out of much of the required basic skill sets and focuses on the advanced QA research and auditing skills. Her Individual Training Account helps her finance her learning plan.

Rolling together her community college micro-credentials, PLAR scores, and university course in QA, Julia (33 years old) earns a skills-aligned degree in QA.

A Learning-Integrated Life Continued

Julia (38 years old) has been working as a quality assurance manager for five years at the food processing plant. Through on-the-job training and regular engagement with the National Association of Quality Assurance Managers, she maintains her QA knowledge.

In her personal time, Julia learns about a national online skills hub where she can pursue learning in other areas of interest to her. She takes a creative writing course and, with a passion for hiking, camping, and photography, starts and outdoors blog in her spare time. Over time, the blog draws enough web traffic to generate a small side income.

When the plant announces its abrupt closure, Julia (45 years old) had become the quality assurance supervisor.

As she falls back on her blog income during her job search, she uses her QA and management skills to develop a product evaluation strategy and starts reviewing outdoor gear. Quickly, she increases her page views and generates a larger income from ad revenue.

Julia's website is noticed by outdoor equipment manufacturers and, because of her rigorous review rubrics and standards, they begin to reach out on a consultative and partnership basis.

Taking courses through the university system skills hub on small business law, Julia (45 years old) establishes a QA consulting business.

Julia continues to learn, improve, and expand her business to retirement. She now takes language and history courses for fun.

SUMMARY

1. The ***Learning-Integrated Life***, where every person's path through childhood and working career is a continual journey with regular and ongoing learning and skills development as the enablers of employability, success, and purpose.
2. Achieving the vision of a Learning-Integrated Life requires a paradigm shift in the current models of education and skills development, and guided practical principles such as affordability, accessibility, quality, and personalization.
3. Each individual will chart their own unique work and learning pathway, with an effective system supporting a wide variety of learner profiles, contexts, career pathways, and learning opportunities.

QUESTIONS FOR CONSIDERATION

- Who should be responsible for leading the systemic changes necessary to achieve the vision of the Learning-Integrated Life—employers, governments, or postsecondary education institutions? How do we differentiate between job-required learning and growth learning?
- What are the barriers to the “supply side”—i.e. universities, corporate training, other forms—shifting to a true ongoing system of lifelong learning for adults at the scale, quality, and flexibility needed to address the expected demand? Are new providers, such as boot camps and for-profit schools, going to fill the void before public systems of learning can adapt?

Where to Go from Here?

Conclusions and Recommendations

Despite pervasive calls for lifelong learning as a solution to rapidly changing workforce dynamics, it is a concept that has not been consistently defined and described. Nor is the architecture for an effective system of lifelong learning evident. This whitepaper aimed to inform and spark debate around a shared vision for lifelong learning.

At the heart of this vision is the idea of the **Learning-Integrated Life**—where every person’s path through childhood and working career is a continual journey, with regular and ongoing learning and skills development as enablers of employability, success, and purpose.

It is important not to overlook the barriers to innovation that must be overcome to enable a Learning-Integrated Life for individuals. With systems of education and training that have developed over centuries, enacting change quickly can be challenging. This includes legacy challenges in postsecondary education, such as campuses with physical infrastructure that biases towards the physical classroom, inflexible credit hours, seat-time-based credentials, rising costs for participation, and systems of incentives which prioritize research over teaching innovation. It also includes quality assurance and measurement gaps across existing education and training systems. At the same time, both individuals and employers express cultural and motivational barriers to learning. Public policies, funding models, and regulatory structures can limit the space for change and innovation.

At the core of the Waterloo Region Future of Work & Learning Coalition vision for a system that elevates the Learning-Integrated Life is an understanding that we all benefit from learning and talent and, therefore, must share in the leadership and responsibility to increase the availability and access to quality opportunities for learning.

- **Governments and education systems** need to prioritize modern, flexible learning opportunities and fund promising practices to better connect individuals to meaningful learning opportunities. Specific attention is needed to ensure no one is left behind due to lack of durable skills, including basic literacy, numeracy, social-emotional and digital skills.
- **Employer** investment in training needs to grow. Promising examples are surfacing, and companies are increasingly understanding the competitive advantage that comes from investing in their own talent.
- **Individuals** also need to invest in a Learning-Integrated Life, including increased amounts of their time, for intensive and episodic learning opportunities linked to successful careers and enriched lives.

A shared commitment to creating accessible and high-quality learning opportunities for a Learning-Integrated Life is a necessary and required starting point. There is reason for optimism as a shared understanding of the need to better link learning opportunities into a cohesive system and to provide the necessary wrap-around supports is growing.

Recommendations

There are some practical and urgent recommendations that can be put forward to guide key stakeholders—policymakers, educators, employers, labour organizations, individual learners, and others—towards the vision of a lifelong learning system and the Learning-Integrated Life.

1. Establish a national imperative for lifelong learning opportunities for adults, with special attention to low-skilled and disadvantaged individuals.

A strategic vision for a cohesive system of learning, accessible by everyone, is necessary to drive change at scale and to garner buy-in from key stakeholders. The federal government can lead national efforts to convene other levels of government, public education systems, and employers to create a cohesive lifelong learning system.

National efforts are needed to:

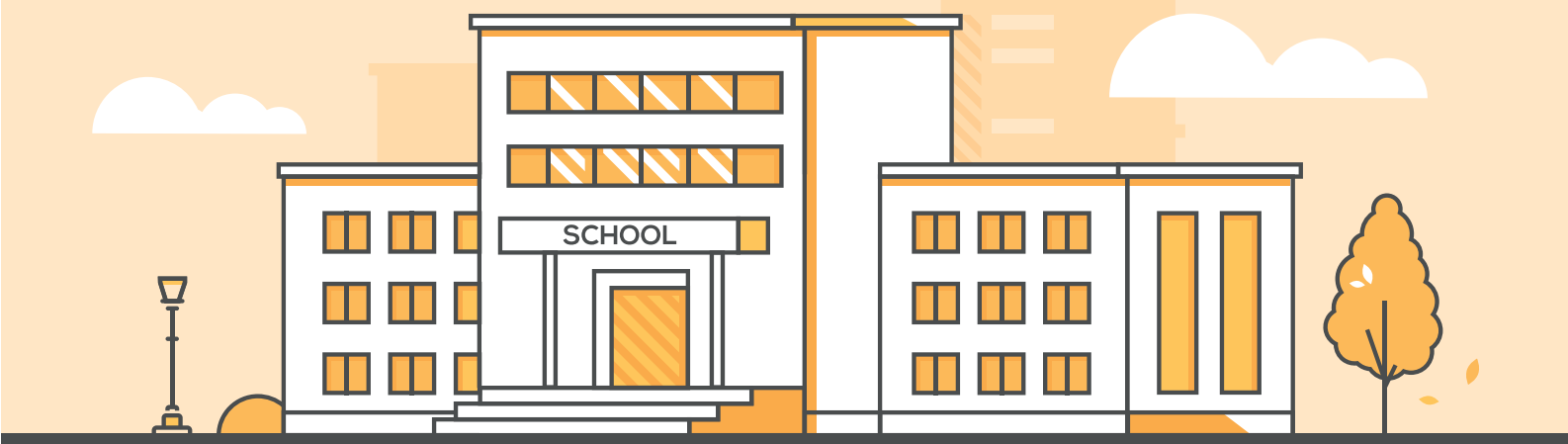
- Establish a common framework to name, define, and promote the essential skills upon which further learning and skills development rests: literacy, numeracy, basic digital, and social-emotional skills.
- Increase tax deductions, tuition rebates and other forms of funding to reduce up-front financial barriers and offer support for Canadians to learn regardless of their relationship with an employer (e.g. employed, gig worker, or unemployed).
- Work with interested provinces and territories, as well as business and labour organizations, to establish a consistent framework of standards for how individuals can take time from work to participate in training and other skills development activities.^{xxxviii}
- Provide “wrap-around supports” (e.g. housing allowance, childcare, etc.) along with employment and skills programming for individuals with limited income security.^{xxxix}

2. Develop more industry-led learning partnerships.

Industry-academic co-design of programs have shown compelling benefits for workers, employers, and educational institutions. Industry-led partnerships with labour organizations offer similar potential in preparing new workers and upskilling existing workers for changing technologies and business processes. These partnerships require boldness, investment, and experimentation, and are an important element in a more demand-driven, employability-focused learning system.

Employers:

- Actively seek out partnerships with learning providers, including trade associations and unions, to offer ongoing upskilling opportunities to their employees aligned to skills in demand.
- Continue to create robust work-integrated learning (WIL) opportunities for learners to gain practical work experience and apply their skills in practice prior to entering the workforce. WIL programs can also serve as a direct recruitment pipeline for building experienced talent.
- Consider how best to support small- and medium- sized enterprises without sufficient resources to develop high-quality internal learning programs.



3. Address the demand for learning through new, flexible models of postsecondary education for adults.

With their teaching prowess, expertise across a vast range of fields, and capacity, postsecondary education institutions are well-positioned to address the growing demands for lifelong learning at scale. Students should not be considered as one-time learners for a capstone degree, but as lifelong, active participants in learning. Creating a more accessible marketplace of learning, based on skills, could offer new models of engagement for individuals such as a lifetime or annual learning subscription for skills development. This would require adapting existing models, repurposing resources, and repackaging programs to align with the needs of working-age adult learners.

Governments:

- Review any accreditation processes for postsecondary institutions to consider new models of learning based on measuring outputs versus input. For example, increasing emphasis on measuring mastery versus seat time.
- Improve the ability for postsecondary institutions to be agile in developing and starting new programs quickly to meet the rapidly changing needs of their local communities. Examples to consider include allowing for express accreditation processes, which balance quality requirements with agility, or programs that support experimentation and innovation while providing data to improve future policies.

Postsecondary education:

- Develop more modular and mastery-based programming to cater to working individuals and those who are learning outside of the traditional classroom.
- Redesign how degrees are described by more explicitly mapping programs to the skills and knowledge they deliver for a more representative credential as a sum of its parts, rather than a generalized calculation of seat time. As credentials shift to digital forms, having this metadata will give individuals and employers a more aligned method of verifying capabilities against job requirements.
- Leverage the continuing education side of the institution to create more opportunities to learn or demonstrate knowledge and skills than is currently available in continuing education. This includes expanding options for skills-based courses, offering Prior learning assessment and recognition (PLAR) services to assess and verify existing skills, and short course-based stackable micro-credentials that give learners shorter-term credential value on a path towards longer-term macro-credentials.

4. Develop models for assessment and recognition based off what already works.

An effective, scalable system of lifelong learning must be built upon reliable and verifiable signaling mechanisms (e.g. micro-credentials, certifications, degrees, etc.) for skills, experience, knowledge, and abilities that are recognized by employers in talent management decisions, and thus valued by individuals.

Governments:

- Convene a stakeholder group which includes employers, postsecondary institutions, and workforce representatives to develop a framework for micro-credentials that will create a common understanding of their components, scope, how they are issued, how they are verified, and how they can be digitized and made portable. Review the work of organizations like IMS Global Learning Consortium that are developing standards and specifications around open badging portability that are critical to the digital credential ecosystem.
- Consider supports for gig workers and other individuals to assess and verify the learning they do independently of employers, postsecondary institutions, or other training providers. PLAR needs to be affordable and accessible.

5. Promote the development of durable skills.

While there is a vast and growing array of job-specific technical skills, knowledge, competencies, and experience to succeed and sustain in work, all should be encouraged and supported to develop the durable skills, such as critical thinking, creativity, and emotional intelligence, that are critical across occupations and for career adaptability. Just as vital is instilling the importance of communicating attained durable skills to potential employers alongside technical skills.

Governments:

- Ensure development of durable skills is explicitly included as deliberate learning outcomes throughout elementary and secondary education curriculum.

Postsecondary education:

- Explicitly define durable skills as necessary learning outcomes throughout postsecondary programs. Measure, assess, and recognize these skills.
- Consider a shift to extended or skills-based transcripts, or include supplemental verification of earned skills, such as assessed badges, certificates, or other micro-credentials where applicable.

Employers:

- Consider the addition of a score for durable skills, in addition to technical and professional skills, during the recruitment and evaluation process of job candidates.

6. Reinforce the Learning-Integrated Life imperative and increase its relevance.

Most working age adults do not regularly see themselves as participating in learning as they don't consider themselves to be learners or in a learning phase of life. Changing this "non-learner" mindset is clearly a central challenge. Efforts to engrain the learner mindset in individuals should start at an early age and continue through adulthood.

Governments:

- Embed the concept of leading a Learning-Integrated Life as a cross cutting theme into education curricula.
- Promote learning pathways and the importance of continued learning for personal economic success through public service awareness-type campaigns to keep adults aware of their options and the necessity.

Employers:

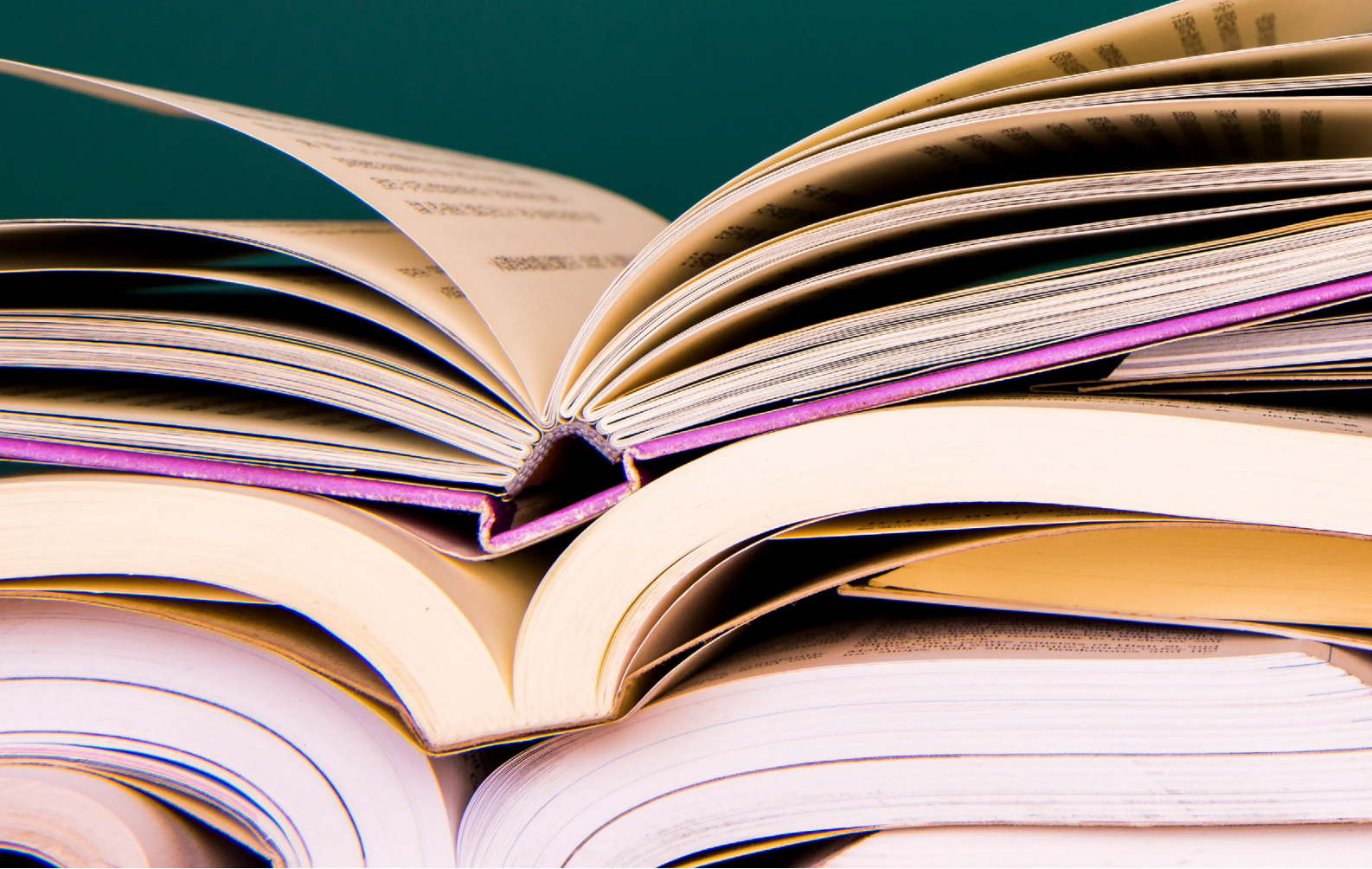
- Consider if and how their employees are getting at least a sustaining amount of skills development on an annual basis. According to the WEF, the average employee will require 25 days on average per year of learning and training. This can be either integrated into work assignments, intermittent training, or other mechanisms.
- Consider adding employee learning and development programs and investments to Corporate Social Responsibility (CSR) reporting. Companies that invest in their people invest in the overall wellbeing of the communities in which they operate.

7. Increase the relevance and quality of LMI to guide decisions.

In order for the shift in our learning systems to be realized and to meet the needs of a Learning-Integrated Life, data must flow more seamlessly between government, industry, and education. Feedback loops must also be shortened.

Governments:

- Shift from job data collection and reporting to skills data. As job requirements rapidly shift, similar titles between companies and industries can incorporate vastly different skills requirements. Data collection based on skills would provide greater resolution on the real needs of the workforce.
- Move towards real-time data collection on labour market information. While plenty of historical data exists on trends, the exponential pace of change today means it is no longer realistic to rely on even last year's data to plan for next year.



Conclusion

The future of work will require a commitment to continuous learning, as employers navigate the rise of the freelance workplace and evolving expectations around what work entails and where it is done, and employees look for opportunities to continuously upgrade their skills.

The Waterloo Region is recognizing this by taking a coalition approach to addressing how workers will adapt as technological automation and artificial intelligence drive workplace change. The Future of Work & Learning Coalition recognizes the importance of a Learning-Integrated Life to ensuring communities are future ready, and has integrated this knowledge into an upcoming project. Set to be

launched in Spring 2021, the FoW&L Community Readiness Scorecard developed by the Coalition in collaboration with the University of Waterloo will be used to assess the Waterloo region's readiness for the future of work and learning along number of key dimensions: people and culture, talent, skills, and lifelong learning, technological advances, workplace dynamics, economic and social development and infrastructure.

This scorecard is one example of the recognition that long-term success depends upon multi-sectoral and multi-stakeholder involvement, and piloting and scaling up of innovative approaches. If we go the distance, the opportunities for learners are boundless.

ENDNOTES

- i Behnoush Amery, “The Future of Work in Canada: Bridging the Gap,” October 2018. Labour Market Information Council. <https://lmic-cimt.ca/publications-all/lmi-insights-report-no-2-the-future-of-work-in-canada-bridging-the-gap/>
- ii D2L, Future of Lifelong Learning Whitepaper (2020) <https://www.d2l.com/resources/assets/the-future-of-lifelong-learning/>
- iii MaRs Discovery District, “Up to the Task: Towards a Pathways Model for Enabling Canada’s Workforce Transition,” August 2018. 4. See also: <https://www.canadianbusiness.com/work/want-a-job-in-canadian-tech-dont-worry-about-that-university-degree/>
- iv Courtney Connley, “Google, Apple and 12 other companies that no longer require employees to have a college degree,” CNBC.com. Accessed November 11th, 2019. <https://www.cnbc.com/2018/08/16/15-companies-that-no-longer-require-employees-to-have-a-college-degree.html>
- v Waterloo EDC, “Waterloo Companies take top two spots on Deloitte Technology Fast 50,” November 2020. Waterloo EDC. <https://blog.waterlootedc.ca/waterloo-companies-top-deloitte-technology-fast-50-2020>
- vi D2L, Future of Lifelong Learning Whitepaper (2020) <https://www.d2l.com/resources/assets/the-future-of-lifelong-learning/>
- vii Business/Higher Education Roundtable. 2020 Business Council of Canada Skills Survey Report (2020). https://www.bher.ca/sites/default/files/documents/2020-08/2020-BCC-Skills-Survey-Report_Final.pdf
- viii D2L, The Future of Skills: In the Age of the Fourth Industrial Revolution (2019), 3. <https://www.d2l.com/resources/assets/the-future-of-work-in-the-fourth-industrial-revolution-canadian-edition-english/>
- ix OECD, Education and Training Policy; Qualifications Systems: Bridges to Lifelong Learning (2007), 10. <https://www.oecd.org/education/innovation-education/qualificationssystemsbriidgetolifelonglearning.htm>
- x OECD, OECD Skills Strategy (2019) 80. <https://www.oecd.org/skills/oecd-skills-strategy-2019-9789264313835-en.htm>
- xi European Commission, Directorate-General for Employment, Social Affairs and Inclusion, “An In-Depth Analysis of Adult Learning Policies and Their Effectiveness in Europe,” (2015), 17. <https://op.europa.eu/en/publication-detail/-/publication/c8c38dc9-89d0-11e5-b8b7-01aa75ed71a1/language-en>
- xii *Ibid.*, pp. 47-55. In a North American context, some studies have found no evidence of training effectiveness on employment and earnings while others have found important benefits, with local context, training design and delivery being important factors. See Karen Myers, Kelly Pasolli and Simon Harding, “Skills-Training Reform in Ontario: Creating a Demand-Driven Training Ecosystem,” Policy Papers, Ontario360, November 2019. 10-11. <https://on360.ca/policy-papers/skills-training-reform-in-ontario-creating-a-demand-driven-training-ecosystem/>
- xiii OECD Survey of Adult Skills (PIAAC, 2012, 2015). <https://www.oecd.org/skills/piaac/>
- xiv *Ibid.*
- xv OECD, Workforce Innovation to Foster Positive Learning Environments in Canada. (2020) https://www.oecd-ilibrary.org/employment/workforce-innovation-to-foster-positive-learning-environments-in-canada_a92cf94d-en
- xvi The Conference Board of Canada, Canadian Employers’ Investment in Employee Learning and Development Continues to Rise (2018) <https://www.conferenceboard.ca/press/newsrelease/2018/01/31/canadian-employers-investment-in-employee-learning-and-development-continues-to-rise?>
- xvii OECD, Workforce Innovation to Foster Positive Learning Environments in Canada. (2020)
- xviii European Commission, “An In-Depth Analysis of Adult Learning Policies and Their Effectiveness in Europe,” (2015) 44.
- xix European Commission, “An In-Depth Analysis of Adult Learning Policies and Their Effectiveness in Europe,” (2015) 44-45.

- xx Gayle Christensen, A. Steinmetz, B. Alcorn, A. Bennett, D. Woods, EJ Emanuel, “The MOOC Phenomenon: Who Takes Massive Open Online Courses and Why?” SSRN, November 2013. 1. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2350964
- xxi University of Waterloo, Skill development for transition to a digital workplace, (2020) <https://uwaterloo.ca/co-operative-education/supports-and-resources/skill-development-transition-digital-workplace>
- xxii Conestoga College, Community partnership addresses shortage in skilled labour, October 2020. http://blogs1.conestogac.on.ca/news/2020/10/community_partnership_adresse.php
- xxiii James Manyika, Susan Lund, Michael Chui, Jacques Bughin, Jonathan Woetzel, Parul Batra, Ryan Ko, Saurabh Sanghvi. “Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation,” (McKinsey & Company, McKinsey Global Institute, 2017). November 29, 2019. <https://www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages>
- xxiv Creig Lamb, “The Talented Mr. Robot: The impact of automation on Canada’s workforce,” June 2016. Brookfield Institute for Innovation and Entrepreneurship, p. 8 https://brookfieldinstitute.ca/wp-content/uploads/TalentedMrRobot_BIIE-1.pdf
- xxv Creig Lamb and Justin To, “Automation Across the Nation: Understanding the potential impacts of technological trends across Canada,” June 2017. Brookfield Institute for Innovation and Entrepreneurship, p. 5-6 https://brookfieldinstitute.ca/wp-content/uploads/RP_BrookfieldInstitute_Automation-Across-the-Nation.pdf
- xxvi The future of jobs report 2018, World Economic Forum, September 2018, <https://www.weforum.org/reports/the-future-of-jobs-report-2018>
- xxvii Deloitte, 2020 Global Human Capital Trends, (2020) 79 <https://www2.deloitte.com/content/dam/Deloitte/at/Documents/human-capital/at-hc-trends-2020.pdf>
- xxviii *Ibid.*
- xxix TD, Future Ready: Why branches are the core of personalized, connected experiences at TD, January 8, 2019. <https://stories.td.com/ca/en/article/future-ready-why-branches-are-the-core-of-personalized-connected-experiences-at-td?>
- xxx Manulife, Manulife University Spotlight: Transforming the Organization Through Upskilling, November 27, 2020. <https://www.developer.manulife.ca/home/blog/manulife-university.html>
- xxxii OECD, “Getting Skills Right: Future-Ready Adult Learning Systems Policy Brief”, 1.
- xxxiii D2L, Future of Lifelong Learning Whitepaper (2020) <https://www.d2l.com/resources/assets/the-future-of-lifelong-learning/>
- xxxiiii Conference Board of Canada, Canadian employers’ investment in employee learning and development continues to rise, January 31, 2018, <https://www.conferenceboard.ca/press/newsrelease/2018/01/31/canadian-employers-investment-in-employee-learning-and-development-continues-to-rise?>
- xxxiv The Government of Canada. Department of Finance Canada. “Budget 2019: Investing in the Middle Class,” (Ottawa: Government of Canada, March 19, 2019. 37. <https://www.budget.gc.ca/2019/docs/plan/budget-2019-en.pdf>
- xxxv The Government of Canada. Department of Finance Canada. Advisory Council on Economic Growth. Learning Nation: Equipping Canada’s Workforce with Skills for the Future. December 1, 2017, 11; Alastair Fitzpaine and Ethan Pollack, “Lifelong Learning and Training Accounts: Helping Workers Adapt and Succeed in a Changing Economy,” Aspen Institute Future of Work Initiative, May 2018, 1. <https://www.aspeninstitute.org/publications/lifelong-learning-and-training-accounts-2018/>
- xxxvi Communitech, Community framework will focus on empowering workforce to develop skills through training, November 16, 2020. <https://www.communitech.ca/media-release/communitech-and-laurier-to-develop-framework-to-prepare-mid-career-workforce-for-future-of-work.html>
- xxxvii Wilfrid Laurier University, Experiential learning the focus of C3 Innovation Labs’ year-end showcase, April 18, 2019. <https://www.wlu.ca/news/spotlights/2019/april/c3il-annual-showcase.html>
- xxxviii Future Skills Council, 2020. <https://www.canada.ca/en/employment-social-development/programs/future-skills/report-learning-nation.html>
- xxxix *Ibid.*

D2L
DESIRE2LEARN

COMMUNITECH[®]

