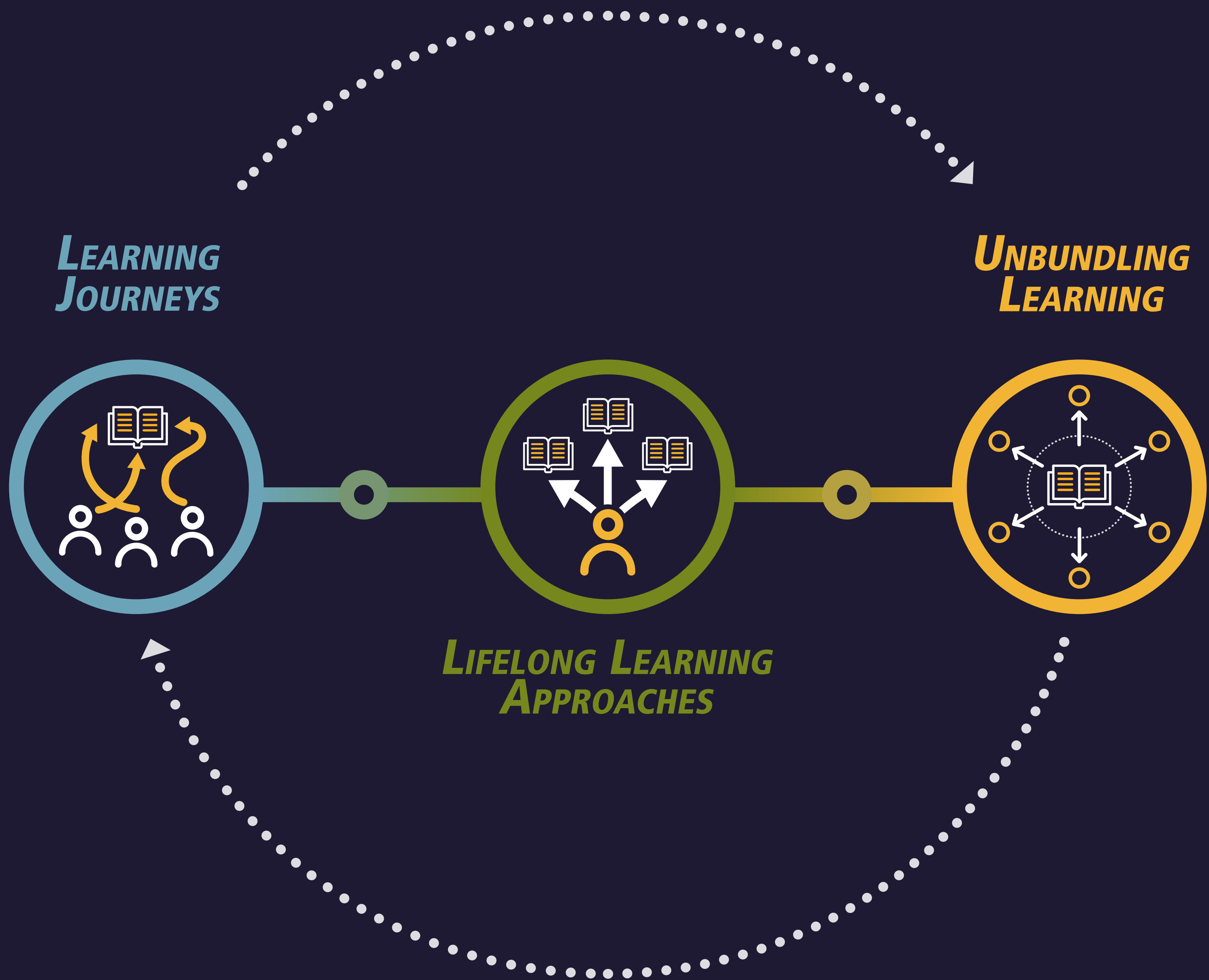


# Lifelong Learning

*This report explores:*

## Lifelong Learning

Empowering lifelong learners and creating opportunities for growth.



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# Lifelong Learning

## Why do we use futures instead of future?

In foresight practice, we refer to the future in plural.

As we cannot predict the future, there is no definite image or vision of it. Thus, the future will always be an infinite range of possible outcomes rather than a single destination.

## The *Virtual Learning Strategy (VLS)* is preparing Ontario postsecondary institutions for Hybrid Futures

The VLS is supporting ongoing and future virtual learning needs at all Ontario Indigenous Institutes, colleges, and universities.

The *VLS* ([link here](#)) is built on three key pillars:



Being the Future



Being a Lifelong Learner



Being a Global Leader

By applying strategic foresight approaches, the Ontario postsecondary sector can co-create hybrid futures by monitoring maturing trends and identifying future possibilities. This work aligns with the VLS pillar of *Being the Future*.

## What is a *Foresight Report*?

Foresight reports are tools to support the navigation of uncertain and complex futures. Using strategic foresight (i.e., a research-driven, systematic exploration of possible futures), Foresight Reports help inform present-day decision-making by identifying patterns of change that may have significant lasting impacts for digital-by-design futures.

## How do I *use* this Foresight Report?

This foresight report is a high-level overview of maturing trends within the postsecondary education sector. We recommend readers to use this report as a map for further exploration. Readers can click on the links provided to learn more about topics of interest. At the end of this report, readers will find a conversation guide to spark futures-facing conversations and explore gradients of possibility.

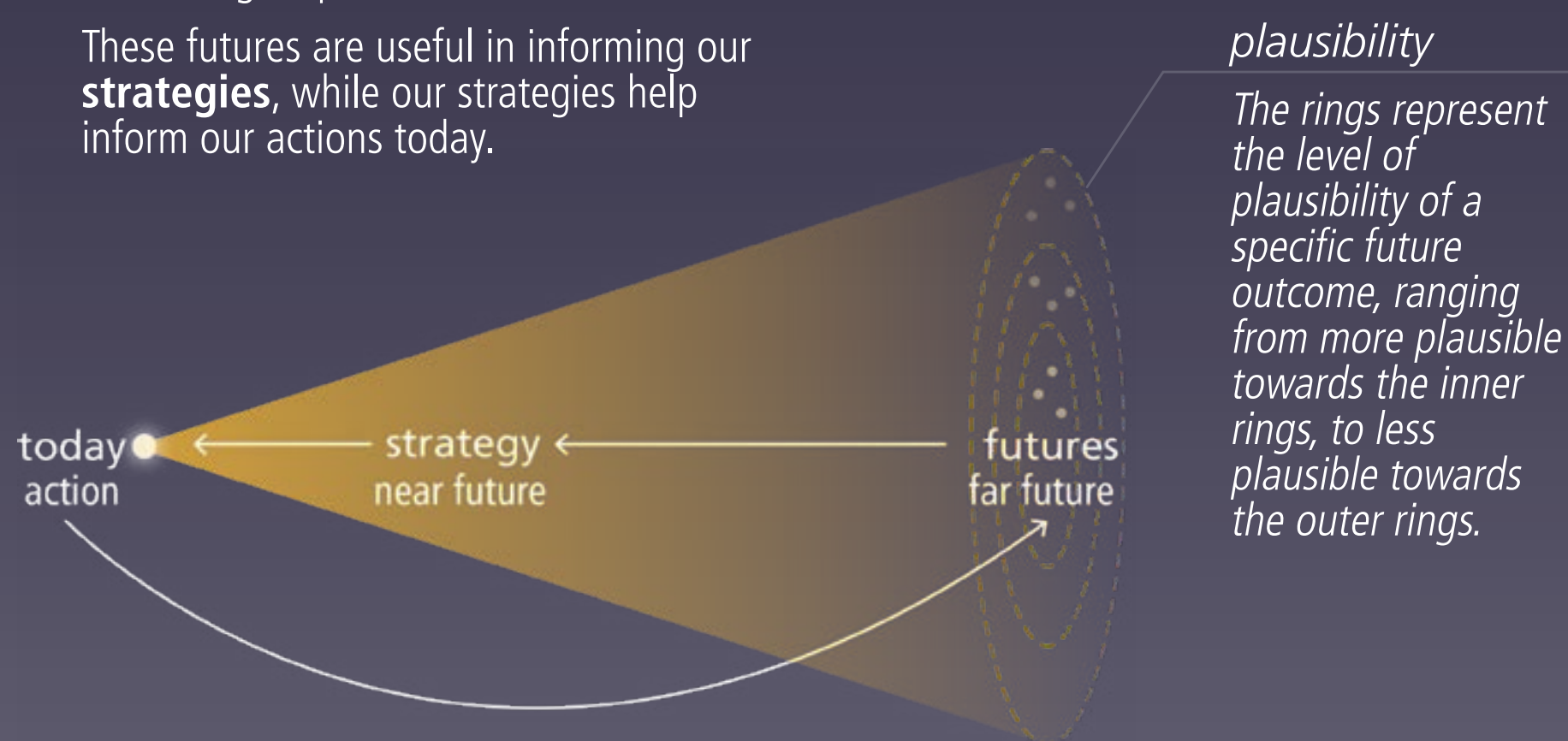
## Why is Strategic Foresight *important* to Ontario postsecondary education?

The COVID-19 pandemic and the shift to emergency remote teaching amplified challenges across the Ontario postsecondary system. Strategic foresight supports institutions in navigating transformation by building awareness of some possible forces of change. Strategic foresight can help address immediate and short-term challenges, while articulating long-term visions for systems level evolution.

### FUTURES INFORMING STRATEGIES OF TODAY

Emerging or maturing trends **today** allow us to imagine possible **futures**.

These futures are useful in informing our **strategies**, while our strategies help inform our actions today.



*plausibility*  
The rings represent the level of plausibility of a specific future outcome, ranging from more plausible towards the inner rings, to less plausible towards the outer rings.

Adapted from [Joseph Voros, The Futures Cone](#)

## REPORT OUTLINE

	<b>Introduction to Lifelong Learning</b> <i>Lifelong &amp; lifewide learning</i>	3
	<b>Lifelong Learning Approaches</b> <i>Life- and career-integrated learning</i> <i>Models of lifelong learning</i>	4
	<b>Learning Journeys</b> <i>Learning, unlearning, relearning</i> <i>Personalized &amp; adaptive learning</i> <i>Learning across the lifespan</i>	5
	<b>Unbundling Learning</b> <i>Microcredentials: a unique value proposition</i> <i>Incremental learning</i>	6
	<b>Conversation Guide</b>	7
	<b>References</b>	7

### FURTHER READING

**1** [What is Futures Literacy and Why Is It Important?](#)  
Medium

**2** [What is Foresight?](#)  
Organization for Economic Co-operation & Development



# Introduction to Lifelong Learning

With digital interconnectivity and new knowledge growing exponentially, learning has become a lifelong process.

Meaningful lifelong learning seamlessly integrates one's life and career. It centers teaching and learning approaches around the evolving needs of learners and considers their diverse stages and motivations.

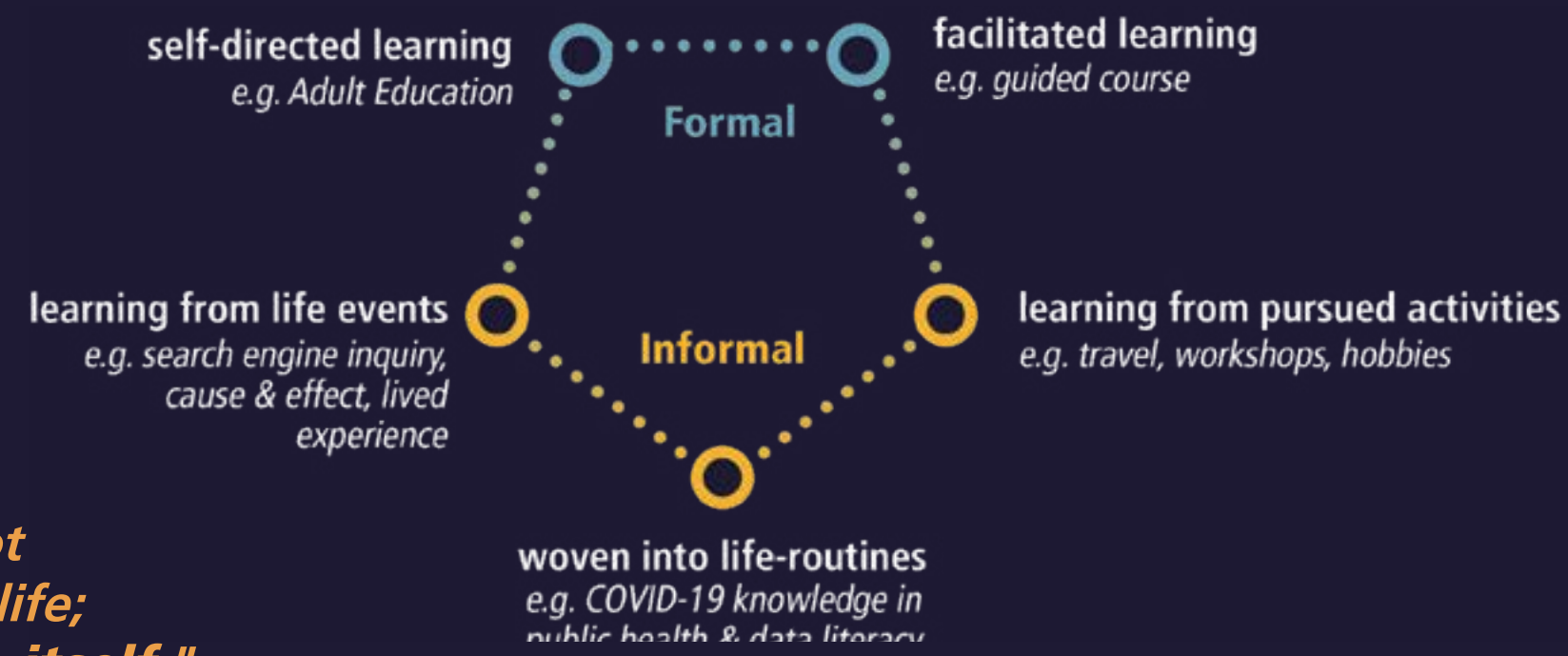
This report explores some key concepts and models that can help frame and enable lifelong learning in a variety of intergenerational environments – online, in-person, or hybrid.

Research indicates that lifelong learning can lead to cognitive and health benefits for older adults. It is projected that the number of people over the age of 65 is expected to grow significantly between 2020-31, and supporting the wellbeing of older adults may become an important priority of postsecondary institutions.

## LIFELONG & LIFEWIDE LEARNING

Education is increasingly being conceptualized as a non-linear, continual process that spans an individual's life phases and stages. Learners may engage or opt in and out of their education as needed or desired.

### LIFELONG & LIFEWIDE LEARNING PROCESS



**"Education is not preparation for life; education is life itself."**

– John Dewey, philosopher & educator

Adapted from Prof. Dr. Jost Reischmann.

## LEARNING JOURNEYS

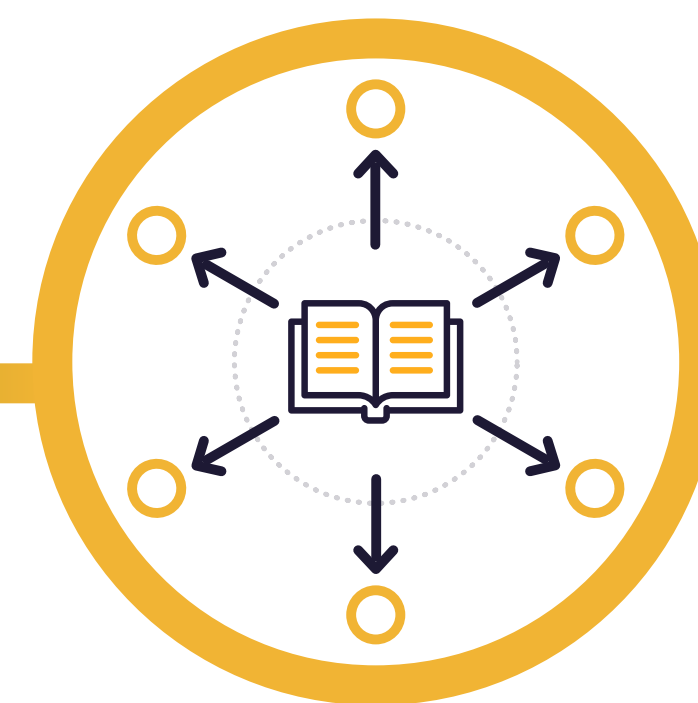
A dynamic process that aims to create personalized, adaptable, and intergenerational hybrid learning environments

more on page 5

Pathways to education that are flexible, cost-efficient, and meet the needs of lifelong learners.

more on page 6

## UNBUNDLING LEARNING



## LIFELONG LEARNING APPROACHES

Models of learning that seamlessly support lifelong learning.

more on page 4

### FURTHER READING

**1** [Lifelong Learning](#)  
UNESCO Institute for Lifelong Learning

**2** [Lifelong Learning Plan](#)  
Government of Canada

**3** [Lifelong Learning in Ontario](#)  
HEQCO

**4** [Seven essential elements of a lifelong-learning mindset](#)  
McKinsey & Company



# Lifelong Learning Approaches

Learners return to education during different life phases and stages for a variety of reasons and motivations. Models of lifelong learning enable flexible and personalized engagement with formal education.

In this section, we highlight three models of lifelong learning. These models can be applied independently or in combination with each other and other models. Each of these models can be applied in a hybrid learning context.

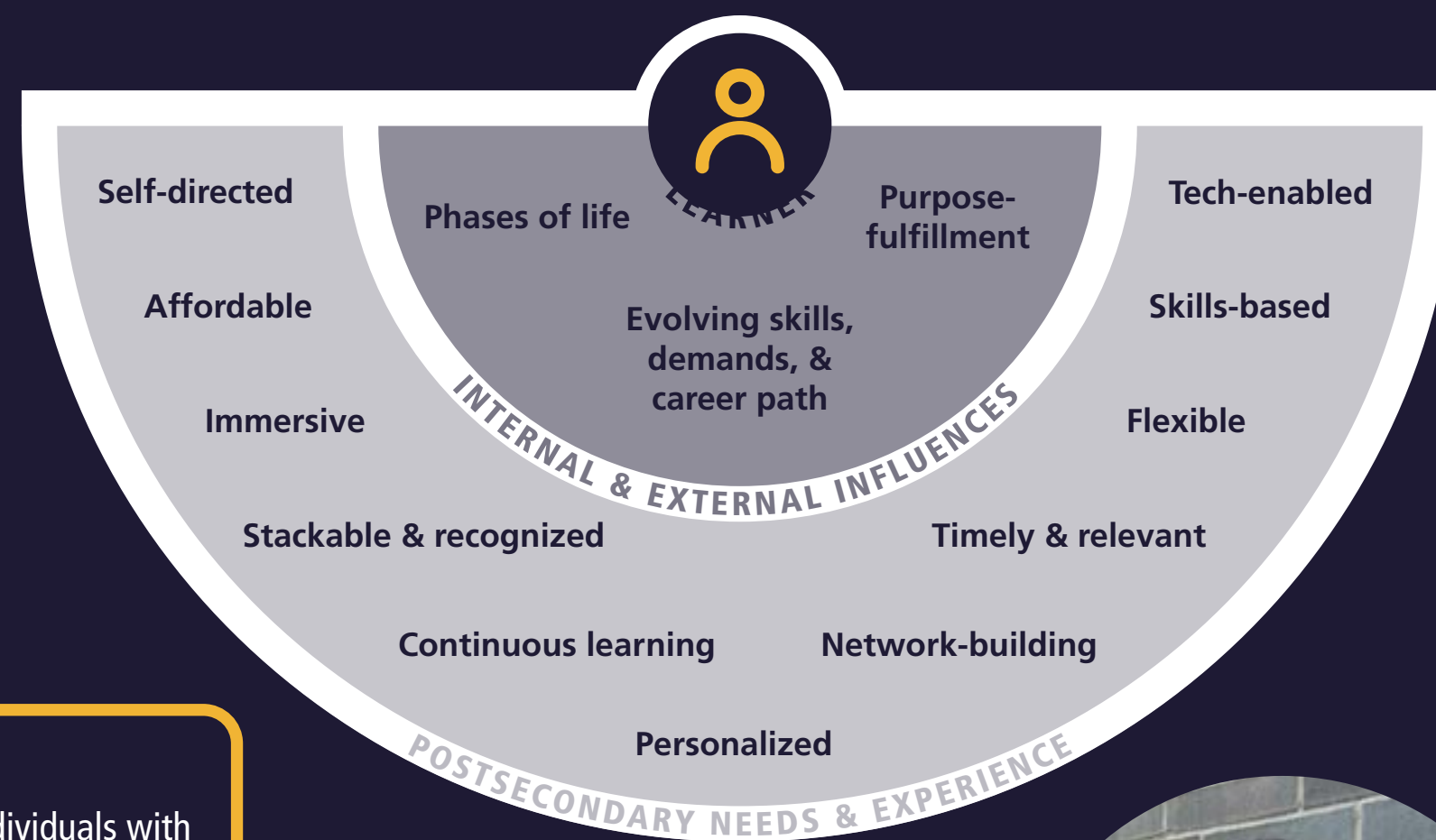


## Learner Intersectionality

Lifelong learners are a diverse group of individuals with a distinct set of identities, needs, and lived experiences. Recognizing and reflecting this diversity into lifelong learning approaches is critical for learner success. For an introductory resource, please see our previous [Foresight Report: Tomorrow's Learners](#).

## LIFE- AND CAREER-INTEGRATED LEARNING

Each learner comes with a distinct set of influences, needs, and learning objectives. Considering and implementing the learner perspective is a key component to designing effective lifelong learning environments.



### LEARNER PROFILE:

**EMILY RHO**  
OCAD UNIVERSITY

An entrepreneur, musician, educator, and designer, Emily is invested in creating positive societal-level changes while nurturing and facilitating human connections. Emily received her Bachelor of Music and Artist Diploma from the Glenn Gould School, and later went on to complete a Master of Music at the University of Toronto. Finding inspiration in the ability to transfer emotions into sounds and communicating this with the audience, Emily co-founded her own concert experience business, Pocket Concerts. As a business owner, she learned to wear many different hats, from being a strategist, to service designer, and to a performer.

This holistic approach to her career has led her to pursue a Master of Strategic Foresight and Innovation at OCAD University. When asked about lifelong learning, Emily shares that:

*"... postsecondary education can not only provide you with opportunities to learn new skills, but it's a great way to expand your mind to learn about all sorts of different ideas, people, and world views."*

Emily believes that lifelong learning goes beyond receiving credentials, and that you can learn every day from those around you.

## MODELS OF LIFELONG LEARNING

Lifelong learning integrates life and career needs for all life stages and phases. Engagement models for lifelong learning accommodate diverse needs and experiences.

### THE 60-YEAR CURRICULUM (60YC)

#### Maintaining career agility

60YC recognizes and emphasizes the need for continued education and a lifelong learning mindset to respond to career transitions, evolving labour needs, as well as technological, economic, and social circumstances (e.g. automation) throughout one's life and career.

60YC promotes 'just-in-time' skills training to support learners in maintaining career agility using flexible and adaptable learning approaches (e.g. micro-learning).

[Link to learn more.](#)

#### Some reasons & motivators to return to education:

- Income potential
- Career change and/or advancement
- Growing flexibility of online education

### MODELS OF INDIGENOUS LIFELONG LEARNING

#### The holistic perspective

There are seven components that make up Indigenous learning.

- Holistic
- A lifelong process
- Experiential in nature
- Spiritually oriented
- Rooted in Indigenous languages & cultures
- A communal activity (family, community, elders)
- Integrates Indigenous & Western knowledge

First Nations, Inuit and Metis people share a vision of learning as a purposeful, holistic lifelong process, and each community has developed a model to illustrate processes and interrelationships related to their respective learning. The models are listed to the right. To learn more, [link here](#).

[First Nations Holistic Lifelong Learning Model](#)

[Inuit Holistic Lifelong Learning Model](#)

[Métis Holistic Lifelong Learning Model](#)

### PURPOSE LEARNING

#### A lifelong pursuit of fulfillment

Pursuing the 'why' behind teaching and learning can have positive implications for learners, educators, and institutions. Purpose learning can align skills with personal values.

Intentionally designed learner experiences, such as real-world based challenges and interdisciplinary curriculum can support this journey.

Purpose learning allows learners to find meaning behind their education and career choices.

[Link to learn more.](#)

*"What if students declared missions, not majors?"*

– Sarah Stein Greenberg, Stanford Executive Director

### OPEN LOOP UNIVERSITY

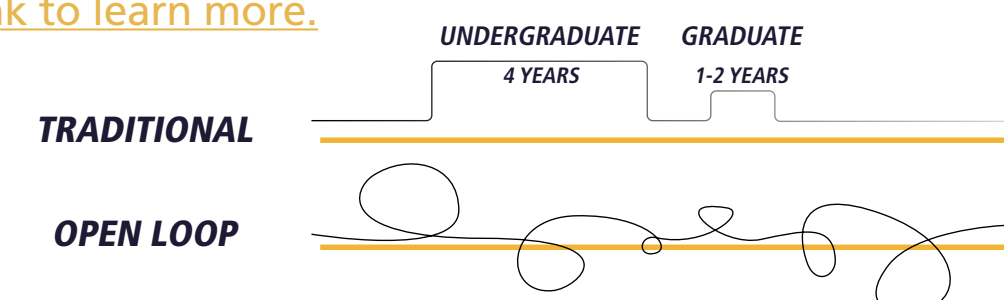
#### Sense of community

Introduced by Stanford University in 2015, Open Loop is an approach to lifelong learning.

This experience invites learners to return back to campus as they navigate through career transitions to learn new skills, and to exchange wisdom and knowledge with other learners and educators.

The Open Loop approach enables postsecondary institutions to revitalize the campus community, where knowledge exchange and community building happen seamlessly among learners and educators from various life phases, stages, and experiences.

[Link to learn more.](#)



Adapted from [Stanford 2025](#).

## FURTHER READING

**1** [Exploring Students' Motivations for Credit Accumulation](#)

BC Council of Administration Tribunals (BCCAT)

**2** [The Future of Lifelong Learning](#)

Desire2Learn

**3** [Stanford 2025](#)

Stanford University

**4** [Lifelong Learning Innovations](#)

HundrED



# Learning Journeys

Supporting a lifelong learning journey requires a dynamic understanding of learning, personalized and adaptable approaches, and empowering learners for self-directed learning.

Supporting self-directed learning requires an understanding of educational theories and approaches that address how learning occurs at different life stages and the supports needed to facilitate success.

Continuous personalization is essential to adapt to learner needs and life stages. Adaptive Learning brings innovation and progress in this area.



## eCampusOntario Adaptive Learning

eCampusOntario has outlined three main objectives to build on their Adaptive Learning work and will be engaging with member institutions through surveys, interviews, and focus groups to build on past projects.

Do you have any questions about Adaptive Learning? Contact us at [adaptivelearning@ecampusontario.ca](mailto:adaptivelearning@ecampusontario.ca).

[Link to learn more.](#)

## LEARNING, UNLEARNING, RELEARNING

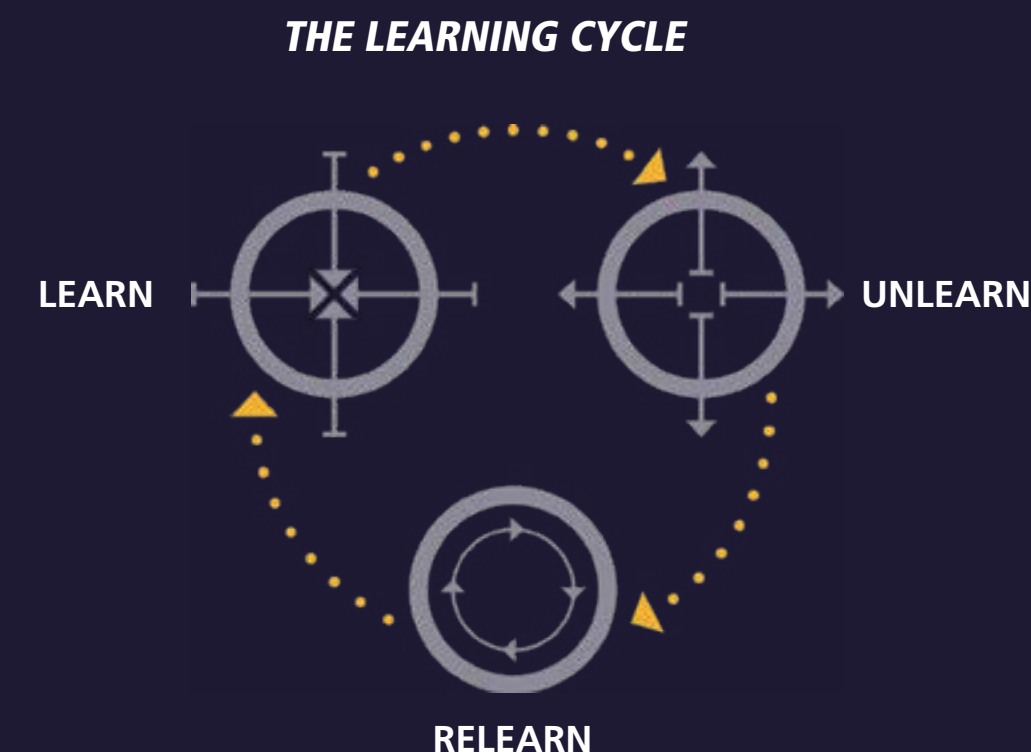
Lifelong learning is best nourished through a growth mindset. A growth mindset continually embraces the discomfort of change, which includes relearning and unlearning. The learning cycle diagram below depicts the cyclical process of learning, unlearning, and relearning.

Unlearning is the conscious effort of challenging one's beliefs and assumptions in the interest of prioritizing curiosity and listening to other perspectives. Unlearning and relearning can create space for more tolerant, diverse, and inclusive beliefs and values.

[Link here to learn more.](#)

*"A growth mentality sees failure not as a detriment, but as a springboard to success."*

– Caroline Castrillon (Castrillon, 2019)



## FOSTERING INTERGENERATIONAL LEARNING

Intergenerational learning is an emerging trend which refers to "open and free exchange of perspectives, values, and ideas between individuals and groups with different life experiences." (Meuser, 2020).

Intergenerational learning can unlock a multitude of benefits for learning environments and campus communities, including:

- Exchange knowledge, skills, & lived experiences that may not be available through learning materials alone
- Foster cultural & social inclusion of all learners
- Develop transferable communication skills

## ORIENTATION TO WISDOM & ADULT-CENTERED LEARNING

Intergenerational learning environments are oriented towards wisdom exchange across generations. The role of postsecondary institutions can evolve towards practicing, creating, and accumulating knowledge in a participatory way while also leveraging existing knowledge resources.

Adult learning is directed towards self-actualization, gaining experience, and problem-solving. By designing a learning environment where adult learners are sources of knowledge for instructors as well as for peer-to-peer learning, postsecondary intergenerational learning can support learners' journey in developing communication skills, problem solving skills, and critical thinking skills.

### Adult learners want:

- Involvement in content choice based on their interests & needs
- Content that is contextualized to their lived experiences
- Learning to be immediately useful

### Adult learners can:

- Implement their own experience into learning
- Serve as a source of knowledge to the instructor & fellow learners

*"If a sustainable future is what we want to create, intergenerational wisdom must be the goal of the university of the future"* – Annelise Riles, 2021

### The Age-Friendly University & Intergenerational Learning

Designing age-inclusive learning spaces can enable active social participation and exchange of knowledge among a wide range of life stages, phases, experiences, and backgrounds. Age-inclusive learning supports Intergenerational Learning, a shared educational environment in which learners of all ages can all learn together and from one another.

Postsecondary institutions in Ontario are joining the Global Age-Friendly Network, committing to being Age-Friendly Universities. As of November 2021, five Ontario postsecondary institutions are members of the Global-Age-Friendly University Network. [Link for the full list of member institutions.](#)

## PERSONALIZED & ADAPTABLE LEARNING

### ADAPTIVE LEARNING TECHNOLOGIES

Adaptive learning systems use algorithms and learning platforms (such as common learning management systems or virtual textbooks) to assess learner knowledge and create customized learning paths.

Adaptive learning systems can:

- Adjust the learning and cognitive style of the learner by changing the modality and type of instruction
- Alter the look and feel of the education environment based on unique learner needs and profile

Adaptive learning can support increasingly diverse needs of lifelong learners. The technology can also make personalized learning possible at scale, with great opportunities for use in modularized learning, such as Massive Open Online Courses and micro-credentials. Literature shows that adaptive learning increases learner engagement and persistence, and they are better able to apply their learning in novel situations.



Area9 Rhapsode was the adaptive learning platform used for the pilot project.

## St. Lawrence College

### CASE STUDY: ST. LAWRENCE COLLEGE PILOTING ADAPTIVE LEARNING FOR TRAINING IN JOBS IN THE TRADES

In 2019 and 2020, St. Lawrence College participated in an adaptive learning pilot project to make training more effective for learners seeking to enter jobs in trades.

The project manager, David Osmond, Manager Skills, Training and Economic Development concluded: "I see it [adaptive learning] as a significant tool to increase access to training and to allow training providers to focus on what learners struggle with and better understand when a learner really knows the content."

#### Demonstrated learning

Adaptive learning platforms allow both learners and educators to verify true mastery of knowledge and skills achieved through a personalized learning experience.

#### New teaching roles for new learning systems

In order to ensure that adaptive learning platforms can work to their full potential, there are new content expert roles required to continuously create and revise the content and break down the content into logic flows that assess learning correctly.

[Link here for more information.](#)

## FURTHER READING

**1** [Using Cybergogy and Andragogy Paradigms in Lifelong Learning](#)

Science Direct

**2** [Why is Everyone Talking About Alternative Colleges?](#)

University of the People

**3** [The Role of Intergenerational Learning in Adult Education](#)

European Commission

**4** [Age-Friendly University Principles](#)

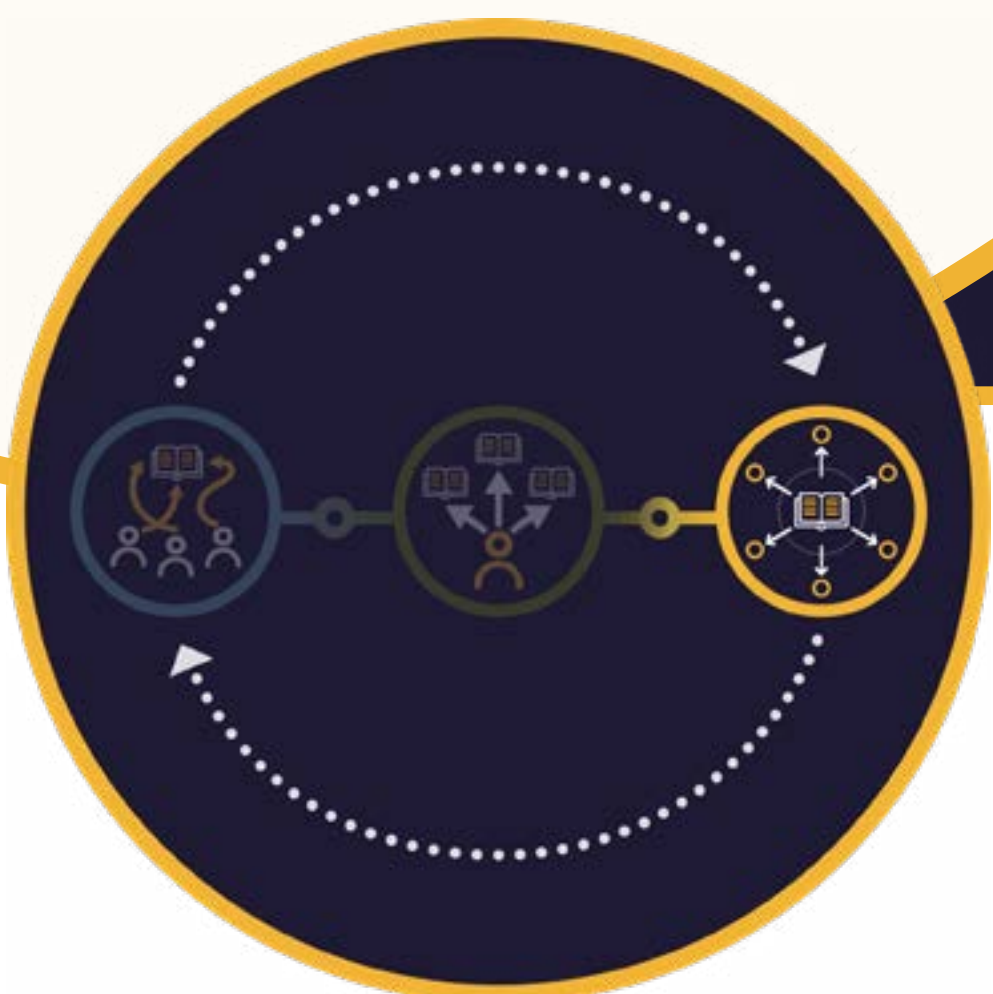
Dublin City University



# Unbundling Learning

The traditional degree is no longer the only option for learners to engage in educational experiences. Flexible, unbundled methods of investing and reinvesting in education are emerging, and they present new options for learners to meet their needs at different life phases and stages.

Unbundled learning opportunities can provide lifelong learners with credentials that are more time-flexible, cost-efficient, personalized, and relevant to the ever-changing workforce. Given its rapid increase in popularity and adoption, the challenges and limitations of unbundled learning should be considered as the trend continues to develop.



## MICRO-CREDENTIALS: A UNIQUE VALUE PROPOSITION

Micro-credentials are accessible to existing learners, prospective learners, job seekers, and employees. Learners are able to quickly build on their credentials in order to further enhance their qualifications and meet the evolving needs of the employers and their respective industries. Employers and postsecondary institutions can become partners to develop and offer micro-credentials tailored to specific needs of the field or role.



*"Micro-credentials target specific skills and competencies, which means that there are many opportunities and uses for them."*

– Emma Gooch, Program Manager, eCampusOntario



### eCampusOntario Micro-credential Framework

With the support of the Government of Ontario, eCampusOntario has launched thirty-six micro-credential pilot projects at Ontario colleges and universities.

The Micro-credential framework is a guide for educators, employers, and policy makers in the development of new micro-credential initiatives, co-developed by representatives from post-secondary institutions.

[Download Framework](#)



The VLS is investing close to \$4 million in 55 micro-credential projects developed by Ontario's public postsecondary institutions. 73% of the projects are collaborative.

[Learn more here](#)

## UNBUNDLED LEARNING OPTIONS

### MICRO-CREDENTIALS & LEARNER APPLICATIONS

We define **micro-credentials** as a certification of assessed learning associated with a specific and relevant skill or competency.

They are an on-demand opportunity to personalize learning to one's needs and interests. Micro-credentials can be a more accessible form of education for many learners, and support a variety of individual circumstances and objectives, some of which include:

- Lifelong learning objectives
- Continuing education
- Re-skilling & upskilling
- Re-entry into the workforce
- Learners without postsecondary education
- Newcomers to Canada

### Life & career growth potential

Micro-credentials have emerged and grown in popularity quickly in order to fulfill learner, worker, employer, and labour market needs.

- Build certification of specific & relevant skills & competencies through assessed learning
- Develop work-readiness & career growth
- Tailor to individual life & career goals
- Aid in learner motivation, engagement, & learning retention

### Challenges & considerations

Though micro-credentials have promising potential, it is important to consider challenges and limitations.

**Establishing a commonly accepted definition:** There is a need for more widespread clarity on what micro-credentials are and what their value potential for learners, workers, and employers are.

**The online only format:** Some feel there are benefits to human interaction for both teaching and learning that micro-credentials cannot offer.

**Supplements, not replacements:** Micro-credentials do not necessarily replace 'recognized' degrees.

**Temporary solution:** Some feel that micro-credentials are not feasible solutions for the complexity of learner and individual needs.

### Learning has no borders

Micro-credentials Sans Frontières (MCSF) is an open international network dedicated to cultivating a deeper understanding of the design, development, delivery, and effectiveness of micro-credential opportunities across the learning lifespan.

[Link to learn more.](#)

### EMERGING OPPORTUNITIES

Unbundled learning is taking shape in other formats. MOOCs have gained rapid widespread popularity over time, while MicroMasters and Nanodegrees are formats that are emerging internationally and may begin to impact the Canadian market in the near future.

#### MOOCs

MOOCs are low-cost, flexible, and self-paced learning environments accessible to all learners regardless of their qualifications or prior learning experiences. MOOCs do not require enrolment with the institution providing the course.

#### MicroMasters

MicroMasters are self-paced, online graduate level courses offered by universities via online learning platforms. They can serve as a mid-point between a Bachelor's and Master's degree.

#### Nanodegrees

Nanodegrees are a 6-12 month certified online educational program geared towards working professionals seeking advanced technical skills (e.g. Computer Science, Artificial Intelligence, Data Science, Marketing, and Business).



**KENJGEWIN TEG**



### CASE STUDY: BRIDGING ACCESS USING VIRTUAL ADMISSIONS

Kenjgewin Teg, Seven Generations Education Institute, and First Nations Technical Institute (FNTI) are co-creating high-quality digital learning content to support Indigenous learners' access to postsecondary education through the Virtual Learning Strategy (VLS).

The project, titled *"Bridging Access using Virtual Admissions: A Tri-Indigenous Institute Collaboration"*, is creating six new courses based on an existing framework for Indigenous Institutions' program admissions and education re-engagement. The learners will be enrolled in a 1-year program titled, "The Good rED Road Bridging Certificate."

This framework responds to the needs of Indigenous adult learners, for whom post-secondary admissions and re-engagement must be responsive, flexible, and dependable. This project will support Indigenous learners to build confidence and develop resilience while negotiating the postsecondary environment.

#### Course topics include:

- Personal Wellness
- Relationship Building
- The Art and Sport of Indigenous Worldview and History
- Academic Readiness
- Career Exploration
- Portfolio Development

## FURTHER READING

**1** [Is the Future Micro?](#)  
eCampusOntario

**2** [Making Sense of Microcredentials](#)  
HEQCO

**3** [Understanding microcredentials](#)  
Tony Bates

**4** [Towards a common definition of micro-credentials](#)  
UNESCO

**5** [Unbundling and Rebundling Higher Education in an Age of Inequality](#)  
EDUCAUSE



# CONVERSATION GUIDE



We invite you to select one or more trends from this report and use the questions provided to spark conversations across your institution.

Remember, this report is simply the beginning.

Please use the additional links and reading resources provided to help guide and support your futures-focused journey.

## QUESTIONS TO FACILITATE FUTURES THINKING

### WHAT

What new opportunities and challenges could arise from this trend?  
What are the ethical implications of this trend?  
What resources are needed to implement this trend (e.g., human, financial)?

### WHY

Why are diverse life phases & stages important to our lifelong learning community?  
Why is this trend important to supporting lifelong learning?

### WHO

Who needs to be involved in developing teaching & learning approaches and methods?  
Who will be impacted (positively and/or negatively) by this trend?

### HOW

How do we enhance capacity to facilitate the implementation of this trend?  
How does this trend impact our current practices?  
How can we build this trend to be sustainable?

### WHERE & WHEN

Where do we go from here (i.e., what are next steps)?  
When can we take action?  
When can we explore this trend further?



### Reach Out to Us!

For additional guidance, questions, or to share your work, please contact [research@ecampusontario.ca](mailto:research@ecampusontario.ca).

## References and Resources

### Introduction

- eCampusOntario. Virtual Learning Strategy (VLS). <https://vls.ecampusontario.ca/>
- Larsen, N., Kaesler Mortensen, J., Miller, R. (2020). What is 'Futures Literacy' and Why Is It Important? Medium. <https://medium.com/copenhagen-institute-for-futures-studies/what-is-futures-literacy-and-why-is-it-important-a27f24b983d8>
- Ogilvy J. (2011). Facing the Fold. Triarchy Press.
- Organization for Economic Cooperation and Development (OECD, 2021). What is Foresight? OECD: Strategic Foresight. <https://www.oecd.org/strategic-foresight/whatisforesight/>
- Voros, J. (2017). The Futures Cone, use and history. The Voroscope. <https://thevoroscope.com/2017/02/24/the-futures-cone-use-and-history/>

### Introduction to Lifelong Learning

- Andersen, D. (2021). The Cognitive Benefits of Lifelong Learning for Seniors. <https://www.knutenelson.org/blog/lifelong-learning-benefit>
- Government of Canada. (2021). Lifelong Learning Plan (LPP). <https://www.canada.ca/en/revenue-agency/services/tax/individuals/topics/rsp-related-plans/lifelong-learning-plan.html>
- Government of Ontario. (2021). Ontario population projections. <https://www.ontario.ca/page/ontario-population-projections>
- Perna Foundation. (2021). Benefits of Intergenerational Learning. <https://medium.com/@premafoundation/benefit-of-intergenerational-learning-83610b8ecd10>
- Pichette, J., Tamburri, R., McKeown, J., Blair, K.A.W., MacKay, E. (2019). Lifelong Learning in Ontario: Improved Options for Mid-career, Underserved Learners. Toronto: Higher Education Quality Council of Ontario. [https://heqco.ca/wp-content/uploads/2020/05/Formatted\\_Lifelong-Learning-in-Ontario.pdf](https://heqco.ca/wp-content/uploads/2020/05/Formatted_Lifelong-Learning-in-Ontario.pdf)
- Reischmann, J. (2014). Lifelong and Lifewide Learning - a Perspective. In: Suwithida Charungkaitikul (ed): Lifelong Education and Lifelong Learning in Thailand. Bangkok, p. 286-309.
- UNESCO Institute for Lifelong Learning. (n.d.). Lifelong Learning. [https://uil.unesco.org/fileadmin/keydocuments/LifelongLearning\\_en/UNESCO\\_TechNotes\\_LLL.pdf](https://uil.unesco.org/fileadmin/keydocuments/LifelongLearning_en/UNESCO_TechNotes_LLL.pdf)
- Wikipedia. (2020). Lifewide learning. [https://en.wikipedia.org/wiki/Lifewide\\_learning](https://en.wikipedia.org/wiki/Lifewide_learning)

### Approaches to Lifelong Learning

- Auger, J., Bender, H., Côté, A., Craney, A., Desetti, B., Irwin, E. (2020). The Future of Lifelong Learning: Designing for a Learning-Integrated Life. Desire2Learn. <https://www.d2l.com/wp-content/uploads/2020/02/Future-of-Lifelong-Learning-D2L-2020-Digital-Edition.pdf>
- BC Council on Admissions & Transfer. (2021). Exploring Students' Motivations for Credit Accumulation. <https://www.bccat.ca/pubs/reports/StudentMotivations2021.pdf>
- Branon, R. (2018). Learning for a Lifetime. Inside Higher Ed. <https://www.insidehighered.com/views/2018/11/16/why-longer-lives-require-relevant-accessible-curricula-throughout-long-careers>
- Clark, C., Noone, D., Selingo, J. (2018). The future(s) of public higher education: How state universities can survive - and thrive - in a new era. Deloitte Insights & Georgia Tech Center for 21st Universities. [https://www2.deloitte.com/content/dam/insights/us/articles/4726\\_future-of-higher-education/DI\\_Future-of-public-higher-ed.pdf](https://www2.deloitte.com/content/dam/insights/us/articles/4726_future-of-higher-education/DI_Future-of-public-higher-ed.pdf)
- Cawood, R., Jones, L., Kirkhope, J., Mulder, A., Ong, A., Roche, J., Ta, D. (2018). Can the universities of today lead learning for tomorrow?: The University of the Future. Ernst & Young. <https://cdn.ey.com/echannel/au/en/industries/government-public-sector/ey-university-of-the-future-2030/EY-university-of-the-future-2030.pdf>
- Harvard Extension School. (2019). The 60-Year Curriculum. [Video]. YouTube. <https://www.youtube.com/watch?v=BRlo-K7WQYk>
- HundrED. (2021). Lifelong Learning innovations. <https://hundred.org/en/innovations?cat=lifelong-learning>
- Mintz, S. (2021). The Purpose-Driven Curriculum. Inside Higher Ed. <https://www.insidehighered.com/blogs/higher-ed-gamma/purpose-driven-curriculum>
- Richards, J., & Dede, C. (2020). The 60-Year Curriculum: A Strategic Response to a Crisis. Educause Review. <https://er.educause.edu/articles/2020/10/the-60-year-curriculum-a-strategic-response-to-a-crisis>
- Siemens, G. and Quillen, C. (2020). Cultivating a Disciplined, Creative Mind and Humane Instincts. Educause Review. <https://er.educause.edu/articles/2020/10/cultivating-a-disciplined-creative-mind-and-humane-instincts>
- Stanford2025. (n.d.). Learning & Living at Stanford. <http://www.stanford2025.com/#intro>
- Stanford2025. (n.d.). Open Loop University. <http://www.stanford2025.com/open-loop-university>
- Stanford2025. (n.d.). Purpose Learning. <http://www.stanford2025.com/purpose-learning>
- Tugend, A. (2019). 60 Years of Higher Ed - Really? The New York Times. <https://www.nytimes.com/2019/10/10/education/learning/60-year-curriculum-higher-education.html>
- UNESCO Institute for Lifelong Learning. (n.d.). Lifelong Learning. UNESCO. [https://uil.unesco.org/fileadmin/keydocuments/LifelongLearning\\_en/UNESCO\\_TechNotes\\_LLL.pdf](https://uil.unesco.org/fileadmin/keydocuments/LifelongLearning_en/UNESCO_TechNotes_LLL.pdf)
- University of the People. (2021). Why is Everyone Talking About Alternative Colleges? <https://www.uopeople.edu/blog/why-is-everyone-talking-about-alternative-colleges/>
- University of Washington. (n.d.). 60-Year Curriculum Resource Guide. <https://www.continuum.uw.edu/getmedia/8fc250b1-5bfc-4a40-bab5-41f4f02b07ae/uwc2-60-year-resource-guide.pdf>
- Weise, M. R. (2017). Future-Proofing College by Embracing 'Purpose Learning'. EdSurge. <https://www.edsurge.com/news/2017-09-21-future-proofing-college-by-embracing-purpose-learning>
- Young, J. (2017). What a Reinvented College Looks Like: 4 Alternative Higher-Ed Models. LinkedIn. <https://www.linkedin.com/pulse/what-reinvented-college-looks-like-4-alternative-higher-ed-young/>

### Learning Journeys

- Auger, J., Bender, H., Côté, A., Craney, A., Desetti, B., Irwin, E. (2020). The Future of Lifelong Learning: Designing for a Learning-Integrated Life. Desire2Learn. <https://www.d2l.com/wp-content/uploads/2020/02/Future-of-Lifelong-Learning-D2L-2020-Digital-Edition.pdf>
- Castrillon, C. (2019). Why a Growth Mindset is Essential for Career Success. Forbes. <https://www.forbes.com/sites/carolinecastrillon/2019/07/09/why-a-growth-mindset-is-essential-for-career-success/?sh=3b55221928b5>
- Cavanagh, T., Chen, B., Lahcen, R. A., & Paradiso, J. R. (2020). Constructing a Design Framework and Pedagogical Approach for Adaptive Learning in Higher Education: A Practitioner's Perspective. International Review of Research in Open and Distributed Learning, 21(1), 172-196.
- Dublin City University. (2021). Principles: Age Friendly University. <https://www.dcu.ie/agefriendly/principles-age-friendly-university>
- eCampusOntario. (2021). Adaptive Learning. <https://www.ecampusontario.ca/adaptive-learning/>
- Eisenberg, R. (2019). Age-Friendly Universities Are Finally Here. Forbes. <https://www.forbes.com/sites/nextavenue/2019/06/04/age-friendly-universities-are-finally-here/?sh=62bc3a6870f>
- European Commission. (2020). OER: The Role of Intergenerational Learning in Adult Education. <https://epale.ec.europa.eu/en/blog/oer-role-intergenerational-learning-adult-education>
- Findsen, B., & Formosa, M. (2011). Lifelong Learning in Later Life: A Handbook on Older Adult Learning. Sense Publishers. <https://doi.org/10.1007/978-94-6091-651-9>
- Hagel, J., Ill., Seely Brown, J., Wooll, M., Mathew, R. and Tsu, W. (2014). The lifetime learner. A journey through the future of postsecondary education. Deloitte Insights. <https://www2.deloitte.com/us/en/insights/industry/public-sector/future-of-online-learning.html>
- Institute for the Future. (2014). Living Longer Aging Well: Redesigning our Experience in the Next Decade. [https://www.iff.org/fileadmin/user\\_upload/downloads/hh/ITF\\_HH\\_LivingLongerAging\\_ell\\_Map.pdf](https://www.iff.org/fileadmin/user_upload/downloads/hh/ITF_HH_LivingLongerAging_ell_Map.pdf)
- Klein, E. (2008). Learning, Unlearning, and Relearning: Lessons from One School's Approach to Creating and Sustaining Learning Communities. Teacher Education Quarterly, Winter 2008. <https://files.eric.ed.gov/fulltext/EJ810659.pdf>
- Liu, M., McKelroy, E., Corliss, S. B., & Carrigan, J. (2017). Investigating the effects of adaptive learning intervention on students' learning. Education Tech Research Dev, 65, 1605-1625.
- Lupou, R., Doroban, U. A., and Fiore, F. (2010). A new lifelong learning model based on intergenerational exchange: Premises and foreseen benefits. Procedia - Social and Behavioral Sciences, Volume 2, Issue 2, 2010, Pages 2761-2765, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2010.03.411>
- Makhlof, J. (2019). Pedagogy vs. Andragogy: Where Many Get it Wrong In Their Learning Strategy. ELM Learning. <https://elmllearning.com/pedagogy-vs-andragogy/>
- Martin, F., Chen, Y., Moore, R. L., & Westine, C. D. (2020). Systematic review of adaptive learning research designs, context, strategies, and technologies from 2009 to 2018. Education Tech Research Dev, 1903-1929.
- McMaster University. (2021). Age Friendly University Initiative. Institute for Research on Aging. <https://mira.mcmaster.ca/education/age-friendly-university-%28afu%29>
- Meuser, T., Gugliucci, M., and Weaver, S. (2020). Intergenerational Learning in Higher Education. The Evollution. [https://evollution.com/attracting-students/todays\\_learner/intergenerational-learning-in-higher-education/](https://evollution.com/attracting-students/todays_learner/intergenerational-learning-in-higher-education/)
- Mirata, V., & Hirt, F. (2020). Challenges and contexts in establishing adaptive learning in higher education: findings from a Delphi study. International Journal of Educational Technology in Higher Education, 17(32), 1-25. doi:10.1186/s41239-020-00209-y
- Moen, P. and Shaefer, K. (2021). Long-Life Learning and the Age-Integration of Higher Education. Stanford Social Innovation Review. [https://ssir.org/articles/entry/long\\_life\\_learning\\_and\\_the\\_age\\_integration\\_of\\_higher\\_education](https://ssir.org/articles/entry/long_life_learning_and_the_age_integration_of_higher_education)
- Muresan, M. (2014). Using Cybergergy and Andragogy Paradigms in Lifelong Learning. Procedia - Social and Behavioural Sciences, 116, 4722-4726. <https://doi.org/10.1016/j.sbspro.2014.01.1015>
- Murray, D. (2021). What is the learn, unlearn, relearn cycle? Go1. <https://www.go1.com/en-au/blog/post-what-is-the-learn-unlearn-relearn-cycle>
- Ontario 360. (2020). Ontario Post-Secondary Leaders and Policymakers. [https://on360.ca/policy-papers/higher-education-for-lifelong-learners-a-roadmap-for-ontario-post-secondary-leaders-and-policymakers/#\\_edn40](https://on360.ca/policy-papers/higher-education-for-lifelong-learners-a-roadmap-for-ontario-post-secondary-leaders-and-policymakers/#_edn40)
- Point Park University Online. (2021). How Adults Learn: Pedagogy vs. Andragogy. <https://online.pointpark.edu/education/pedagogy-vs-andragogy/>
- Riles, A. (2021). The Intergenerational University. Inside Higher Ed. <https://www.insidehighered.com/views/2021/08/23/universities-should-focus-long-term-intergenerational-solutions-global-challenges>
- School of UnLearning. (n.d.). About. <https://www.schoolofunlearning.org/about>
- Shearer, R. L. (2017). Adaptive Learning, Competency Based Education, and Personalization: Implications for Distance Education and Adult Learners. Journal of Lifelong Learning Society, 13(1), 49-71. doi:10.26857/JLLS.2017.02.13.1.49
- Talentguard. (2021). Reskilling and Upskilling: A Strategic Response to Changing Skill Demands. <https://www.talentguard.com/blog/reskilling-upskilling-strategic-response-changing-skill-demands>
- University of the People. (2021). Why is Everyone Talking About Alternative Colleges? <https://www.uopeople.edu/blog/why-is-everyone-talking-about-alternative-colleges/>
- Warrell, M. (2020). Learn, Unlearn & Relearn: What Got You Here Won't Get You There, Forbes. <https://www.forbes.com/sites/margiewarrell/2020/06/12/learn-unlearn-relearn-what-got-you-here-wont-get-you-there/?sh=65da34c520a6>



## References and Resources

### Unbundling Learning

Accredited Schools Online. (2021). The Ultimate MOOC Handbook. <https://www.accreditedschoolsonline.org/resources/moocs/>

Bates, T. (2021). Understanding microcredentials: a report from HEQCO. Online Learning and Distance Education Resources. <https://www.tonybates.ca/2021/05/31/understanding-microcredentials-a-report-from-heqco/>

Balan, R. S. (2021). What Is a Nanodegree? Should I Study One in 2021? Studyportals. <https://www.mastersportal.com/articles/2852/what-is-a-nanodegree-should-i-study-one-in-2021.html>

Ben Lewis. (2021). Micro-credentials Briefing Notes. Ontario Confederation of University Faculty Associations. <https://ocufa.on.ca/assets/OCUFA-Micro-credentials-briefing-note.pdf>

Brumwell, S., Han, S., Pichette, J., Rizk, J. (2021). Making Sense of Microcredentials. Higher Education Quality Council of Ontario. <https://heqco.ca/pub/making-sense-of-microcredentials/>

Brunken, J. (2021). What is Microlearning? The Case For Shorter, Bite Sized Learning. Thinkific. <https://www.thinkific.com/blog/what-is-microlearning/>

Centre for Teaching and Learning. (2021). What are MOOCs? University of Alberta. <https://www.ualberta.ca/centre-for-teaching-and-learning/teaching-support/services/instructional-resources/what-are-moocs/index.html>

Chaktsiris, M., Cukier, W., Garreffa, N., Gooch, E., Luke, R., McCallum, K., Patterson, L. (2021). Is the Future Micro? eCampusOntario, The Diversity Institute., Future Skills Centre. [https://micro.ecampusontario.ca/wp-content/uploads/2021/03/Is\\_the\\_Future\\_Micro-1.pdf](https://micro.ecampusontario.ca/wp-content/uploads/2021/03/Is_the_Future_Micro-1.pdf)

Coursera Inc. (2021). <https://www.coursera.org/>

Credentialate. (2020). Micro-Credentials - What They Are and Why They're Valuable. Edalex. <https://www.edalex.com/guides/micro-credentials-what-they-are-and-why-theyre-valuable>

Czerniewicz, L. (2018). Unbundling and Rebundling Higher Education in an Age of Inequality. EDUCAUSE Review. <https://er.educause.edu/articles/2018/10/unbundling-and-rebundling-higher-education-in-an-age-of-inequality>

eCampusOntario. (2021). Adaptive Learning. <https://www.ecampusontario.ca/adaptive-learning/>

eCampusOntario. (2021). Why Micro-credentials Matter. <https://micro.ecampusontario.ca/>

EduBrief. (2021). EduBrief publications and resources on micro-credentials. <https://www.edubrief.com.au/micro-credentials.html>

EDUCAUSE. (2021). Competency-based Education (CBE). <https://library.educause.edu/topics/teaching-and-learning/competency-based-education-cbe>

edX. (2021). <https://www.edx.org/>

edX. (2021). MicroMasters Programs. <https://www.edx.org/micromasters>

Duklas, J. (2020). Micro-credentials: Trends in Credit Transfer and Credentialing. BC Council on Admissions & Transfer. <https://www.bccat.ca/pubs/Reports/MicroCredentials2020.pdf>

Johnson, N. (2020). Evolving Definitions in Digital Learning: A National Framework for Categorizing Commonly Used Terms. Canadian Digital Learning Research Association. <http://www.cdla-acrf.ca/wp-content/uploads/2021/07/2021-CDLRA-definitions-report-5.pdf>

Kenyon, T. (2020). 4 lessons for the future of lifelong learning. The RSA. <https://www.thersa.org/blog/2020/06/lifelong-learning-covid>

KPMG International. (2020). The future of higher education in a disruptive world. <https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/10/future-of-higher-education.pdf>

Leighton, M. (2021). Coursera and edX both offer certificate programs at a fraction of the cost of grad school — here are the main differences between them. Business Insider. <https://www.businessinsider.com/edx-micromaster-vs-coursera-mastertrack-online-masters-programs>

MOOC.org. (2021). Open edX. <https://www.mooc.org/>

Oliver, B. (2021). A conversation starter: Towards a common definition of micro-credentials. UNESCO. [https://www.edubrief.com.au/uploads/4/5/0/5/45053363/draft\\_unesco\\_report\\_microcredentials\\_13\\_sept\\_21.pdf](https://www.edubrief.com.au/uploads/4/5/0/5/45053363/draft_unesco_report_microcredentials_13_sept_21.pdf)

Polytechnic University of Milan, Baden-Wuerttemberg Cooperative State University. (2020). Challenges and Opportunities of Micro-Credentials in Europe. <https://microcredentials.eu/wp-content/uploads/sites/20/2019/12/WP3-Interviews-with-Key-Stakeholders-Decision-Makers-Overall-Summary-Report.pdf>

Pop, A. (2021). MOOCs - What Exactly Are They? Studyportals. <https://www.distancelearningportal.com/articles/401/moocs-what-exactly-are-they.html>

Schick, S. (2021). Everything you need to know about microcredentials. CourseCompare. <https://www.coursecompare.ca/what-are-microcredentials/>

Shah, D. (2020). The Second Year of The MOOC: A Review of MOOC Stats and Trends in 2020. The Report by Class Central. <https://www.classcentral.com/report/the-second-year-of-the-mooc/>

SHIFT. (2021). Numbers Don't Lie: Why Microlearning is Better for Your Learners (and You too). <https://www.shiftelearning.com/blog/numbers-dont-lie-why-bite-sized-learning-is-better-for-your-learners-and-you-too>

Study International Staff. (2020). What are MicroMasters programmes? Study International. <https://www.studyinternational.com/news/micromasters-programmes/>

TeachThought Staff. (2021). What is Competency Based Learning? TeachThought. <https://www.teachthought.com/learning/what-is-competency-based-learning/>

The BeaconLive Marketing Team. (2020). What Is Microlearning – and What Are Its Advantages? BeaconLive. <https://www.beaconlive.com/blog/microlearning-benefit>

Udacity. (2021). The latest digital skills, within reach. <https://www.udacity.com/>

Lifelong Learning is the third in a series of five Foresight Reports that expand on the VLS pillar of Being the Future by exploring maturing trends in the Ontario postsecondary sector and situating the VLS in the futures of virtual learning.

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