Preparing Lifelong Learners for a Diversifying Economy Through Micro-credentials and Laddering at Athabasca University

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Abstract

Learners need relevant and transformative skills to adapt to a world of increasing change and complexity. It is important to provide diverse opportunities to support lifelong learning. In response to the *Alberta 2030: Building Skills for Jobs* report and Alberta's Recovery Plan to the COVID-19 pandemic, PowerED™ by Athabasca University, Ethically Aligned AI, and Athabasca University's Faculty of Science and Technology developed three online, on-demand micro-credentials. The three micro-credentials, Ethics and Artificial Intelligence, Innovative and Diversified Energy Resources, and Energy Efficiency in Architecture Engineering (AEC) and Construction Industry, were funded by the Government of Alberta to provide job-ready skills in priority areas. Athabasca University's PowerED unit is designing and developing these three micro-credentials in partnership with Athabasca University faculty and subject matter experts. PowerED™ is Athabasca University's award-winning continuing education unit that provides an on-demand approach to the online learning experience which includes a mix of multi-media (videos, podcasts) interactive tools, case studies, gamification, competency assessment, downloadable materials, and AI simulations for immediate assessment. The micro-credentials are being designed to be flexible and can be accessed from any device that connects to the internet. Each micro-credential is made up of a set of modules and learners can combine different micro-credentials to develop specific competencies to focus on specific skill development requirements. Modules are being designed so that in the future, individual modules can be re-packaged into unique micro-credential offerings. In completing these micro-credentials, learners will be able to obtain relevant skills in key areas of employment. These micro-credentials will ladder into the BSc programs at Athabasca University, creating additional opportunities to continue learning in a flexible and accessible way. To facilitate this, we are developing a micro-credential framework at the institutional level that will also align with future frameworks in Alberta and Canada.

Keywords: artificial intelligence (AI), micro-credentials, lifelong learning, stackable credentials

Introduction

Globally, there is recognition and support for ongoing workforce skill development to meet the rapid changes impacting our work. To meet this need, flexible approaches to learning and development are required – outside of the traditional degree. Micro-credentials are increasingly promoted as a new and more flexible way to develop knowledge, skills, and competencies. Micro-credentials can provide professionals and organizations the opportunity to develop skills through smaller units of learning. Research suggests that the key driver of economic development is based on investing in human capital for sustained economic growth, leading to the highest quality of life (Power & Maclean, 2013). Learning throughout life leads to improved human capital and labour productivity, and this, in turn, is the major contributor to economic development (Power & Maclean, 2013). To be successful in the global knowledge economy, industries, public and private organizations need to continually upskill workers (UNESCO, 2020). Knowledge is growing at an exponential rate: employers need managers and employees who are creative problem-solvers, innovators who are constantly updating their knowledge and expertise to improve productivity, and are good team players. Lifelong learning raises the productivity of the whole workforce and contributes to poverty alleviation and sustainable development (UNESCO, 2020). Open and distance education plays an important role in lifelong learning, leading to economic stability in our global economy (UNESCO, 2020).

The Need for Lifelong Learning

Lifelong learning for professionals goes beyond formal education and training to include needed future skills development (Power & Maclean, 2013). In today's world, there is recognition that professionals will need to continue to learn and renew skills across their lifetime. With rapid change affecting organizations, professionals will be required to continually access the latest knowledge and develop skills that are essential to their work. Lifelong

learning enhances employability and the capacity to be effective in participating in activities designed to improve the quality of life in the community (Power & Maclean, 2013). The longer professionals are engaged in education and training, as reflected in their acquired skills and qualifications, the higher one's income and the more likely one is to be employed (Power & Maclean, 2013). Continuing to learn is key to gaining employment and income stability.

In today's world, amplified by the dramatic economic effects of the COVID-19 global pandemic, organizations are forced to face new economic and workforce realities to prepare for the future (Carnevale et al., 2020). With the rapid onset of global change, driven by advanced technology, globalization, and a multitude of other factors; there is recognition that professionals will need to continue to learn and renew their skills across their lifetime to adapt to employment realities brought on by change. To accomplish continued skill development, including upskilling – to expand capabilities and reskilling – to develop new in-demand skills; professionals will need access to flexible, and non-traditional educational opportunities that enable skill development. The proliferation of micro-credentials is a means to build needed skillsets flexibly. However, now more than ever, Canada must develop common definitions, language, frameworks, and quality assurance to support the development of meaningful micro-credentials.

The Proliferation of Micro-credentials

Micro-credentials are increasingly seen as the key to the future of work and learning. According to the Colleges & Institutes Canada's (CICan) *The Status of Microcredentials in Canadian College and Institutes* report (2021), "A Micro-Credential is a certification of assessed competencies that is additional, alternate, complementary to, or a component of a formal qualification." (p. 1). The growth in micro-credential programming and offerings grew dramatically in 2020 and exploded during the COVID-19 pandemic when organizations were forced to upskill and reskill employees quickly, to respond to new realities. While the research into micro-credentials is limited at this point in time, post-secondary institutions, governments, and private providers are increasingly focusing resources on the proliferation of micro-credentials. The diversity of micro-credentials across geographic locations and by providers greatly differs – especially between private, for-profit providers, and post-secondary providers. There is also a lack of common language leading to a lack of understanding of what micro-credentials are and are not, and their value – which all contributes to limited comparable data, and assessment of impact.

Elena Cirlan, a policy, and project officer with the European University Association (EUA), has described micro-credentials as, "usually they are smaller than conventional qualification and can be formal or non-formal" adding that "policy-makers see them as shorter and a more targeted and flexible way to address the short-term needs of society and the labour market" (Mitchell, 2020). Micro-credentials provide value for all stakeholders, including post-secondary institutions, learners, and employers. For post-secondary institutions, micro-credentials provide an avenue to "widen participation to different groups of students" and experiment with innovative programming before committing to the resource-heavy development of degree programs (Mitchell, 2020). For learners, micro-credentials enable skills development in a more flexible means to increase competitiveness, without committing to full-time study. From the employer's perspective, micro-credentials can be "used for on-the-job training and help employers understand the specific skills the prospective employee might offer" (Mitchell, 2020).

Leveraging Micro-credentials at Post-secondary Institutions

The development and delivery of micro-credential programs have exploded in recent years, with a wide range of colleges, universities, and education providers using this model to deliver shorter, outcome-oriented offerings to new demographics of learners. One of the most significant reasons driving the development and delivery of micro-credentials is due to the significant talent shortages and much identified and discussed skills gaps. Micro-credentials have been important to create upskilling and reskilling opportunities that enable people to find employment, transition careers, or move-up within a career. Micro-credentials are hyper-focused on developing a specific set of skills and competencies that address the gaps industry is seeing. The traditional learning certificates that post-secondary institutions have been creating and delivering for years are typically for-credit programs that may take a year or more to complete. Now, coming into the market are shorter, more flexible non-credit micro-credentials that may stack or ladder into more traditional certificates, diplomas, and degrees.

Micro-credential and Transferability

Micro-credentials are being viewed through the lens of transferability, which is to say that post-secondary institutions including Athabasca University are focusing more closely on how pathways can be created between non-credit and credit education. Some of that shift is coming from the learner and recognition of the need for lifelong learning. To support lifelong learning, pathways need to be in place for a learner to bring together all of their education in a meaningful way, filling skills gaps with micro-credentials, then moving seamlessly in and out of more

traditional types of learning. Employers are playing a role here too. They are asking what skills their employees can learn after completing micro-credentials accessed through training and tuition-reimbursed education. The employer does not want the learning to stop there and neither does the learner. So, as the higher education providers, there are great opportunities to maximize the identification and creation of pathways of continued learning for employees.

Micro-credentials and Misconceptions

When it comes to micro-credentials, there are several misconceptions. One misconception is that micro-credentials will compete with, or totally replace degrees. They will not. Micro-credentials are a complement to traditional degrees. Micro-credentials are filling in market gaps and are providing quick opportunities to develop targeted skills that will also feed into more traditional learning. Another micro-credential misconception is the level of quality. In Canada, non-credit micro-credentials are not standardized; they do not have the same accreditation process that degrees have. However, many micro-credentials are being created in partnership with faculty and industry experts and follow institutional quality assurance processes to create high-quality offerings. The space of continued education is one that is extremely competitive both within Canada and with global platforms offering online programming – therefore, it behooves all involved to strive for the best and highest quality learning experience – or the learner will simply go elsewhere. And finally, some may say that micro-credentials are simply a trend because they have been so explosive of late. Across Canada, there is significant investment from provincial governments into the development and delivery of micro-credentials. The investment into micro-credentials proves that micro-credentials will only continue to expand and develop.

Micro-credentials and Innovation

Micro-credentials can respond quickly to identified current market needs. To do so requires a reimagining of institutional processes to be nimble, and agile, to leverage opportunities. PowerED™ by Athabasca University has developed micro-credentials in as few as six to eight weeks. It is such a compressed timeframe that does not fit into typical institutional processes. Athabasca University and specifically within PowerED™ seeks opportunities to repackage and repurpose existing content to shorten the development time or leverage existing learning objects. Processes include assessing existing content and learning objects that already exist within the institution that can be modularized and redesigned into a micro-credential. Also looking external for existing content to see if there are opportunities to license ready-made content from other institutions that have successfully designed and developed a similar micro-credential. Licensing content expedites bringing an offering to the market and saves significant resources in the design and development phase.

When creating a fully new micro-credential, PowerED™ typically partners with industry and faculty experts to co-construct content and then implements rapid development and agile principles into the course design and production phases to expedite the micro-credential development. Faculties can see the value of partnering with internal units like PowerED™ that can serve as a driver and opportunity for new course development on which faculty can build and implement into their programming. There is a mutually beneficial partnership between PowerED™ and Athabasca University faculty partners to be responsive and develop content that then can be used in additional programs beyond the micro-credentials they were initially created for.

Micro-credentials and Attracting New Learning

Post-secondary institutions can leverage micro-credentials to craft a more meaningful lifelong learning pathway for learners through stacking into larger credentials, then laddering into diplomas or degrees. Micro-credentials can attract new learners who desire to enrol in a micro-credential to try something new. Learners can dip their toe into the water of something that may be completely outside their typical skillset. Micro-credentials serve as a lower-risk investment and are appealing to those interested in a career change, allowing them to try out something different before fully committing to longer-term studies. Micro-credentials also offer the ability for post-secondary institutions to build community. Institutions can leverage micro-credentials to get learners excited to return for more learning. PowerED™ has developed micro-credentials specifically designed to re-engage learners, reconnect with them, and craft a tailored learning experience just for them.

Micro-credential Strategy

Micro-credentials have emerged in a context of lifelong learning, higher education affordability, a desire to satisfy employer and industry needs for specific skills, and as an efficient and improved means of demonstrating skills and competencies. Micro-credentials cover a range of credentialing options that are positioned as an alternative or an enhancement to traditional credentials such as certificates degrees and diplomas. Currently, the

micro-credential landscape is one of confusing terminology that varies between institutions, organizations, and jurisdictions. In Canada, the Canadian Digital Learning Research Association (CDLRA) defines alternative credentials simply as offerings beyond traditional degrees, diplomas, and certificates (Johnson, 2019, p.21). For micro-credentials to meet their potential in Canada, a national strategy should be considered to bring together guiding principles, competency frameworks, and provincial micro-credential initiatives to establish a high-level roadmap to ensure common language, articulation of micro-credential learning's value, and develop offerings that are of quality and meet the skill development needs of Canadians.

  Central to the development of a micro-credential strategy in Canada is the need to adopt a set of guidelines or principles for the development and implementation of micro-credentials. This work is currently underway in provinces across Canada, with limited inter-provincial involvement – creating further siloed approaches for micro-credential development. For example, e-CampusOntario – a provincially-funded non-profit organization, has developed a micro-credential framework for Ontario, that was co-developed by a "working group of employers and post-secondary representatives in Ontario to provide high-level guidance for micro certification pilots across the province" (Micro-certification Principles Framework, n.d.). British Columbia's BC Campus – a provincially-funded non-profit is also developing its provincial standard for micro-credentials development, while in Alberta, the Alberta Advanced Education is developing a framework to support a provincial framework. What is missing is a threading or alignment of frameworks across Canada to ensure micro-credential strategies are being developed using a common language and are developed with quality assurance standards expected from Canadian institutions.

  Post-secondary institutions will need to lead and work with stakeholders for micro-credentials credit transfers and recognition as well as Internet accessibility (UNESCO, 2020; BCcampus, n.d.). Policies can be targeted and funding frameworks created using collective decision-making (UNESCO, 2020). The collaboration of all stakeholders to develop a commitment to the recognition and transferability of micro-credentials can result in:

- Added value to the higher education system where all stakeholders promote social inclusion.
- Appealing and meeting the development needs of an inclusive and wide range of learners.
- Creating an open Internet, free from commercial motives are central to the lifelong learning agenda.
- Developing new pathways to achieve learning goals such as upskill, reskill, or obtaining a degree credential.
- Supporting and motivating learners to complete credentials and drive renewed engagement in education for all.
- Developing commonalities in language and use of micro-credentials as stackable, flexible, validated, and transferable credits with the potential of developing common national curricula for certain micro-credentials.
- Supporting research to track the demographics of the micro-credential clientele and identify best practices as well as future needs to ensure accessibility to micro-credentials for underrepresented groups, those in rural and remote regions, and people facing barriers to postsecondary education, skills upgrading, and employment.

Conclusion

  The proliferation of micro-credentials continues to expand alongside the recognition and need for continuous skill development. Through flexible approaches to learning through micro-credentials, Canadians are afforded the opportunity to up-skill and re-skill to meet the challenges of an ever-changing working environment and sustain or gain meaningful employment. Purpose-built micro-credential offerings provide professionals and organizations the opportunity to develop needed skills through small units of learning. With increased investments in the design and delivery of micro-credentials, it is becoming increasingly important for collaboration across Canada to create common definitions, quality assurance standards, recognized terminology, and parameters for best practices for micro-credential offerings to advance skill development.

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