



# The Future is Micro

Digital Learning and Micro-credentials for  
Education, Retraining and Lifelong Learning



## Partners



The Diversity Institute conducts and coordinates multi-disciplinary, multi-stakeholder research to address the needs of diverse Canadians, the changing nature of skills and competencies, and the policies, processes and tools that advance economic inclusion and success. Our action-oriented, evidence-based approach is advancing knowledge of the complex barriers faced by underrepresented groups, leading practices to effect change, and producing concrete results. The Diversity Institute is a research lead for the Future Skills Centre.



The Future Skills Centre (FSC) is a forward-thinking centre for research and collaboration dedicated to preparing Canadians for employment success. We believe Canadians should feel confident about the skills they have to succeed in a changing workforce. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure, and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead. The Future Skills Centre was founded by a consortium whose members are Ryerson University, Blueprint ADE, and The Conference Board of Canada, and is funded by the Government of Canada's Future Skills Program.



eCampusOntario is a provincially-funded non-profit organization that leads a consortium of the province's publicly-funded colleges, universities and Indigenous institutes. We develop the platforms, tools and research that advance the use of education technology and digital learning environments in support of lifelong learning.



Magnet is a digital social innovation platform founded at Ryerson University. Magnet's mission is to accelerate inclusive economic growth for all in Canada by advancing careers, businesses and communities. The Magnet Network includes all relevant stakeholders involved in fostering economic growth and opportunity, including community partners, employers, post-secondary job boards, and job seekers across Canada.

## Funders

The Future Skills Centre – Centre des Compétences futures is funded by the Government of Canada's Future Skills Program.



eCampusOntario's work on this report is funded by the Ministry of Colleges and Universities.



The opinions and interpretations in this publication are those of the authors and do not reflect those of the funders.

Publication Date: March 2022

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# Foreword

## The Future is Micro

**Good things come in small packages, as the saying goes. And the more we hear about micro-credentials, the more we realize that small things can indeed have a big impact.**

This report, *The Future is Micro: Digital Learning and Micro-credentials for Education, Retraining and Lifelong Learning*, aims to foster a better understanding of micro-credentials and how they can support and advance people's career goals and in turn bolster the national workforce.

After the pandemic hit, employers and post-secondary institutions recognized an immediate need for rapid retraining and re-skilling and sought flexible, agile, and responsive systems of learning and training that could connect learners and employers.

Micro-credentials offer an exciting option to meet these collective needs and are currently being explored and assessed to strengthen Canada's skills development ecosystem. The goal of these shorter, more flexible, and tailored credentials is to equip people with new skills, competencies, knowledge, and attributes to navigate the labour market of the future.

This report strives to enhance awareness and understanding of micro-credentials and their impact on jobs, economic sectors, and the livelihood of Canadians. These efforts will inform future work so that this innovative method of demonstrating skills proficiency can be honed as a transformative tool to help rebuild the economy and create a resilient system of lifelong learning that is accessible, flexible, and relevant.

At the Future Skills Centre, we are committed to delivering easy-to-access, practical labour market information. We would like to thank our partners at the Diversity Institute, eCampusOntario, and Magnet for convening this research and for joining us in our commitment to producing practical labour market and skills information such as that found in this report. We are also grateful to the Government of Canada for supporting a national future skills strategy that builds on evidence and practical delivery of skills training and development.

**Pedro Barata**

Executive Director, Future Skills Centre

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# Executive Summary

**Micro-credentials are an innovative way to demonstrate proficiency in skills and competencies and offer a potentially transformative tool to address skills gaps in Canada's labour market and future skills needs.**

Yet they are also a relatively new innovation, and stakeholders need to overcome a number of challenges and nurture growth in the micro-credential ecosystem in order to underpin their widespread use and adoption.

First, the micro-credential landscape, from both a global and Canadian perspective, has previously been characterized by competing definitions and approaches to micro-credentialing. Today, however, there is tentative emergence of a high-level consensus. This is mirrored in the increased enthusiasm for the use of micro-credentials in much of Canada and elsewhere.

eCampusOntario has developed, in collaboration with its partners, the Micro-credential Principles and Framework as a foundation for building micro-credential projects in Ontario. This work has played an important part in efforts to build a consensus of definition in Canada and to address current needs in the emerging Canadian micro-credentials ecosystem. The Principles and Framework is designed to bridge gaps in stakeholder understanding and create a unified micro-credential ecosystem in Ontario.

As a way of advancing the adoption of micro-credentials, and to further test and refine its

Micro-credential Principles and Framework, eCampusOntario partnered with a number of Ontario post-secondary education institutions to launch 36 micro-credential pilot projects. The utility of the framework for these pilots was then assessed through five focus groups with pilot leads and community and employer partners, as well as an online survey of project partners from participating post-secondary institutions. Data on six themes was collected and analyzed, and the following findings emerged:

- 1. The utility of the eCampusOntario Principles and Framework:** Participants of the research study found the framework to be useful when developing micro-credentials.
- 2. Relevant skills and competencies:** Micro-credentials have significant value for supporting the development of workplace-related skills and competencies.
- 3. Being responsive, agile, and flexible:** Much of the value offered by micro-credentials derives from their ability to respond to the needs of learners and the changing labour market with agility and flexibility. Current governance structures in the post-secondary programming context, which limit this agility and flexibility, represent important challenges to unlocking the full value of micro-credentials.
- 4. Authentic assessment:** Assessments of micro-credentials need to be meaningful and relevant to learners and employers.

**5. Meeting learner needs:** Micro-credentials have the potential to re-skill and up-skill learners of all ages and learners at different stages of their lives.

**6. Collaborative development:** Micro-credentials benefit from collaborative development by numerous stakeholders in the ecosystem, including but not limited to post-secondary institutions, community partners, and employers.

Learning from this research, the report highlights a handful of key lessons for how to support the further development of the micro-credential ecosystem in Ontario:

**1. Balancing a common definition and flexibility:** The eCampusOntario Principles and Framework was designed to foster unity in an ecosystem where the definition and understanding of micro-credentials was still emerging. While consensus is important, research participants have also expressed appreciation for the non-prescriptive nature of the Principles and Framework and the flexibility that it allows for institutions to apply it in ways that fit their own contexts.

**2. Filling the awareness gap:** Micro-credentials are still a new concept for employers, post-secondary institutions, and other potential stakeholders in the ecosystem. More communication about micro-credentials is necessary to raise awareness and drive adoption.

**3. Improving assessment in the micro-credential ecosystem:** A clear approach to assessment is necessary to build a strong micro-credential ecosystem.

**4. Meeting learner needs:** Meeting learner needs should be at the centre of decisions relating to micro-credential program design and program delivery. Currently, there is

not enough research to capture learner feedback on micro-credentials, something that is critical for further improving the design of micro-credential programs.

**5. Collaborating in the micro-credential ecosystem:** Collaborative development by educators, employers, and learners in the micro-credential ecosystem is necessary. All stakeholders in the micro-credential ecosystem rely on each other.

Building on the data analysis and the key lessons, the report offers eight recommendations to further develop the micro-credential ecosystem:

1. Create robust employer and educator networks to facilitate collaboration and connection across sectors.
2. Conduct further research into the assessment methods that work best in the context of micro-credentialing.
3. Conduct a comprehensive mapping of skills in demand in the present and future.
4. Amend the eCampusOntario Principles and Framework to account for the insights gathered in this report.
5. Support experimental and innovative micro-credential development, delivery, and pedagogy.
6. Drive awareness of micro-credential potential and opportunity across Canada among the stakeholder groups identified in this report: educators, employers, and learners.
7. Conduct additional research on the potential of micro-credentials to support competency and skill development among equity-seeking groups.
8. Invest in research to capture feedback from learners and/or employers.



# Introduction

**With the onset of the COVID-19 pandemic in 2020, there was an immediate need for rapid retraining and re-skilling as the workforce adapted to new health and safety protocols and shifted heavily toward remote working.**

Employers and post-secondary institutions (PSIs) responded with renewed interest in flexible, agile, and responsive systems of learning and work-relevant training that could connect them with learners<sup>1</sup> and employment partners in both program design and delivery.<sup>2</sup> Micro-credentials offer an exciting option for meeting these needs and are currently being explored in Ontario, across Canada, and around the world. Indeed, in just the last few months, a series of reports on initiatives have been published, helping to advance our evolving understanding of the function, governance, and context of micro-credentials in Canada.<sup>3,4</sup>

While these high-level conversations about micro-credentials are unfolding, it is critical to consider the lived experiences of those who are already developing and delivering them. Over the last three years, eCampusOntario has worked with a variety of partners to develop micro-credential initiatives at Ontario PSIs through a series of pilot projects. While each of these pilot projects is unique, they were all designed using the collaboratively co-created

eCampusOntario Micro-credential Principles and Framework, a blueprint for creating and scaling micro-credential programs in Ontario.

This report, which is part of a larger collaboration between eCampusOntario, the Diversity Institute, Magnet, and the Future Skills Centre, focuses on these pilot projects to illuminate what is working, what is missing, and where we might be going when it comes to micro-credentials in Canada. We collected these experiences using a mixed-methods approach: 1) a survey of eCampusOntario's micro-credential pilot project leads, and 2) a series of focus groups that included pilot project leads and community and employer partners involved in one of the 36 pilot projects. This approach was designed to capture the on-the-ground experiences of those engaged with the pilot program, and to explore their perceptions and beliefs about the future of micro-credentials in Ontario.

Our method of data collection was designed to enable an initial appraisal of the eCampusOntario micro-credential pilot project initiative to date and to assess the usefulness and successes of the Principles and Framework. This appraisal is not, and is not designed to be, a scientific evaluation of the effectiveness of the Principles and Framework. The consultations we undertook as a part of

this research project were not wide enough for that purpose: they did not include engaging with learners to access their experiences, and there was only limited engagement with employers. Rather, the purpose of this report is to introduce the Principles and Framework, to build a wider audience and build a better understanding of micro-credentials by describing the initial experiences of those who have used the Principles and Framework to launch micro-credential pilot projects. It provides useful feedback to inform further improvements to the Principles and Framework, which is designed to be a living document.

This report should also help lay a strong foundation for more rigorous evaluations in the future. Ultimately, we hope it will support the further deployment of a national system of micro-credentials that are well positioned to help rebuild the post-pandemic economy and create a resilient system of lifelong learning that is accessible, flexible, and relevant.

The content of this report builds on the analysis laid out in [Is the Future Micro? Unbundling Learning for Flexibility & Access.](#)<sup>5</sup> Chapter 1 presents a short overview of the current micro-credential landscape in Canada and abroad, including discussions of nomenclature, important concepts, and key areas of alignment and emerging consensus. The focus shifts in Chapter 2 to a description of eCampusOntario's work on micro-credentials, specifically on the Principles and Framework and the 36 pilot projects. The main empirical findings from the survey and focus groups are also presented in this chapter. Chapter 3 presents an analysis of these results and reviews the key themes, findings, and lessons learned from the research project.

The report concludes with a summary of recommendations that follow from our analysis and briefly identifies some opportunities for the further development of micro-credentials in Ontario. Three appendices provide details of survey and focus group questions.



# Chapter 1: The Micro-credential Landscape

**Micro-credentials are a new and innovative way to recognize and demonstrate proficiency in skills and competencies and have great potential to play an important role in addressing skills gaps in the labour market. But what exactly is a micro-credential and how is it that it has this potential?**

This chapter explores the different understandings of the term *micro-credential* in global, national, and provincial contexts, and outlines a rough definitional consensus that is emerging both globally and in Canada. It also discusses how micro-credentials can help advance inclusion and meet future skills needs. Finally, it closes by examining how successful deployment and adoption of micro-credentials depend on the cultivation of a robust ecosystem defined by three key concepts, namely trust, value, and exchange. In so doing, this chapter provides an analytical foundation for the discussion of the primary research findings presented in Chapter 2.

## What Is a Micro-credential Anyway?

Conversations about micro-credentials often start with a deceptively simple question: What are they?

This question may appear simple, but it is not, because the term micro-credential is just one of a number of similar terms used to describe a variety of related and overlapping concepts and tools that have emerged in recent decades. However, more recently there is an emerging consensus—somewhat still rough and evolving—on what the term means.

Micro-credentials are just one of many forms of alternative credentials that have developed over the history of experimentation with nontraditional education.<sup>6</sup> Over the past two decades, this has included the creation of more condensed styles of learning in the form of MOOCs (massive open online courses), badges (emblems of learned skills), micro-courses, and boot camps. Interest in micro-credentialing specifically has increased over the last 18 months, coinciding with emergency shifts in life and work in response to the COVID-19 pandemic. This interest was heightened partially due to the urgent need of educators, employers, and learners to adapt to the extraordinary circumstances of the pandemic.<sup>7</sup>

There is currently no universally accepted definition of *micro-credential*. This has been acknowledged as a challenge by stakeholders because:

- > It hinders further development and acceptance of micro-credentials.<sup>8</sup>
- > It makes it difficult to identify the value of micro-credentials to employers and learners.
- > It is a challenge to differentiate them from other similar concepts.<sup>9</sup>

Table 1 provides an overview of different understandings of micro-credentials held by organizations in a variety of jurisdictions. Critically, however, it also describes the many areas of intersection and overlap between them along the following key dimensions:

- > Skill and competency focus
- > Assessment
- > Workplace and employer relevance
- > Connection to traditional programming
- > Course length

**TABLE 1**  
Defining Micro-credentials: A Summary

Location	Source	Definition	Skill/competency focused	Assessed	Workforce relevant/ employer driven	Connected to traditional programming/pathways	Short duration/length
Ontario	<u>Algonquin College</u>	Micro-credentials are short, flexible, skills-based learning experiences that demonstrate mastery of certain skills or competencies. Some individual micro-credentials may be combined, or “stacked,” to earn full credentials such as a certificate or diploma.					
Ontario	<u>Ontario Tech University</u>	A micro-credential is a digitally recorded recognition of a small, specific skill. It is a portable communication tool that represents evidence of your skills for employers, educators, and peers. Micro-credentials are created with industry, so you can be assured that the skills you are learning are in demand and current.					

Location	Source	Definition	Skill/competency focused	Assessed	Workforce relevant/ employer driven	Connected to traditional programming/pathways	Short duration/length
Ontario	<u>Sheridan College</u>	Micro-credentials certify an individual's achievements in specific skills and differ from traditional education credentials, such as degrees and diplomas, in that they are shorter, can be personalized and provide distinctive value and relevance in the changing world of work.					
Ontario	<u>Seneca College</u>	A micro-credential is a certification for a specific set of demonstrated skills and/ or competencies, as valued by industry and labour markets. Micro-credentials at Seneca are earned to add value to existing formal education accomplishments and/or other certifications.					
Canada	<u>Colleges &amp; Institutes Canada (CICan)</u>	A micro-credential is a certification of assessed competencies that is additional, alternate, complementary to, or a component of a formal qualification.					
Canada	<u>eCampus-Ontario</u>	A micro-credential is a certification of assessed learning associated with a specific and relevant skill or competency. Micro-credentials enable rapid retraining and augment traditional education through pathways into regular post-secondary programming.					

Location	Source	Definition	Skill/competency focused	Assessed	Workforce relevant/ employer driven	Connected to traditional programming/pathways	Short duration/length
Canada	<u>Higher Education-Quality Council of Ontario (HEQCO)</u>	A micro-credential is a representation of learning, awarded for completion of a short program that is focused on a discrete set of competencies (i.e., skills, knowledge, attributes), and is sometimes related to other credentials.					
US	<u>Digital Promise</u>	<p>Micro-credentials provide educators with recognition for the skills they develop throughout their careers, regardless of where or how they learned them. Micro-credentials are:</p> <ul style="list-style-type: none"> <li>• <b>Competency-based:</b> Micro-credentials articulate a discrete skill to support educator practice and the specific evidence educators must submit to demonstrate their competence in that skill.</li> <li>• <b>Research-backed:</b> Each micro-credential is grounded in sound research that illustrates how that competency supports student learning.</li> <li>• <b>Personalized:</b> Educators select micro-credentials from the catalogue aligned to personal goals, student needs, or school-wide instructional priorities.</li> <li>• <b>On-demand:</b> Educators can start and continue their micro-credential journeys on their own time and in their own ways.</li> </ul>					

Location	Source	Definition	Skill/competency focused	Assessed	Workforce relevant/ employer driven	Connected to traditional programming/pathways	Short duration/length
US	<u>National Education Association (NEA)</u>	<p>A micro-credential is a short, competency-based recognition that allows an educator to demonstrate mastery in a particular area. NEA micro-credentials are grounded in research and best practice and designed to be:</p> <ul style="list-style-type: none"> <li>• Personalized: You can create your own learning journey, based on your interests and career goals; gaps in your skills; and the specific needs of your students, school, and district.</li> <li>• Flexible: You can study when it's convenient for you, alone or with your peers.</li> <li>• Performance-based: Unlike “sit-and-get” certifications, NEA micro-credentials are awarded based on demonstrated mastery of the subject matter, not just for showing up.</li> </ul>					
US	<u>State University of New York</u>	<p>At the most basic level, micro-credentials verify, validate, and attest that specific skills and/or competencies have been achieved. They differ from traditional degrees and certificates in that they are generally offered in shorter or more flexible timespans and tend to be more narrowly focused. Micro-credentials can be offered online, in the classroom, or via a hybrid of both.</p>					

Location	Source	Definition	Skill/competency focused	Assessed	Workforce relevant/ employer driven	Connected to traditional programming/pathways	Short duration/length
European Union	<a href="#"><u>“Micro-credentials linked to the Bologna Key Commitments (MICROBOL)”</u></a>	A micro-credential is a small volume of learning certified by a credential. In the European Higher Education Area (EHEA) context, it can be offered by higher education institutions or recognized by them using recognition procedures in line with the Lisbon Recognition Convention or recognition of prior learning, where applicable.					
Europe Union	<a href="#"><u>European Commission</u></a>	A micro-credential is a proof of the learning outcomes that a learner has acquired following a short learning experience. These learning outcomes have been assessed against transparent standards.					
Australia	<a href="#"><u>Deakin University</u></a>	A micro-credential is a certification of assessed learning that is additional, alternate, or complementary to or a component part of a formal qualification.					
Malaysia	<a href="#"><u>Malaysian Qualifications Agency</u></a>	A micro-credential is defined as digital certification of assessed knowledge, skills, and competencies in a specific area or field that can be a component of an accredited program or stand-alone courses supporting the professional, technical, academic, and personal development of the learners.					

Location	Source	Definition	Skill/competency focused	Assessed	Workforce relevant/ employer driven	Connected to traditional programming/pathways	Short duration/length
New Zealand	<u>New Zealand Qualifications Authority (NZQA)</u>	<p>A micro-credential certifies achievement of a coherent set of skills and knowledge, and is specified by a statement of purpose, learning outcomes, and strong evidence of need by industry, employers, kiwi and/or the community. Micro-credentials are smaller than a qualification and focus on skill development opportunities not currently catered for in the regulated tertiary education system. At a minimum, micro-credentials will be subject to the same requirements as training schemes or assessment standards and will also be required to:</p> <ul style="list-style-type: none"> <li>• Be 5 to 40 credits in size.</li> <li>• Have strong evidence of need from employers, industry, and/or community.</li> <li>• Not duplicate current quality assured learning approved by NZQA.</li> <li>• Be reviewed annually to confirm they continue to meet their intended purpose.</li> </ul>					

Location	Source	Definition	Skill/competency focused	Assessed	Workforce relevant/ employer driven	Connected to traditional programming/pathways	Short duration/length
Global	<u>United Nations Educational, Cultural and Scientific Organization (UNESCO)</u>	<p>A micro-credential:</p> <ul style="list-style-type: none"> <li>• Is a record of focused learning achievement verifying what the learner knows, understands or can do.</li> <li>• Includes assessment based on clearly defined standards and is awarded by a trusted provider.</li> <li>• Has stand-alone value and may also contribute to or complement other micro-credentials or macro-credentials, including through recognition of prior learning.</li> <li>• Meets the standards required by relevant quality assurance.</li> </ul>					

Table 1 shows there is currently no universally accepted definition of a micro-credential, but there are clear signs that a consensus on the outlines of such a definition is emerging. These outlines were explicitly identified in a recently released preliminary report from UNESCO which, after carefully surveying the existing micro-credential landscape, offered the following as a tentative consensus definition:

**A micro-credential:**

1. is a record of focused learning achievement verifying what the learner knows, understands or can do;
2. includes assessment based on clearly defined standards and is awarded by a trusted provider;
3. has stand-alone value and may also contribute to or complement other micro-credentials or macro-credentials, including through recognition of prior learning; and
4. meets the standards required by relevant quality assurance.<sup>10</sup>

This UNESCO report is careful to say that this is the “beginning of a conversation towards a universal definition rather than the last word”<sup>11</sup> and that the definition has not been “officially endorsed by UNESCO.”<sup>12</sup> But it does offer a starting point for a pathway toward a universally accepted definition, with the key next steps identified as additional conversations with stakeholders with “commercial interests” in micro-credentials as well as with “lay users such as learners across the lifespan, and employers.”<sup>13</sup>

## Toward a Canadian Consensus

A high-level consensus on the definition of a *micro-credential* in Canada appears to be even more advanced, as we demonstrate in the analysis summarized below and in the findings of our research project (Chapter 2). The following timeline highlights some important interventions that have contributed to this progress:

- > **November 19, 2019:** eCampusOntario releases a framework to guide micro-credential development in Ontario.<sup>14</sup>
- > **March 1, 2021:** eCampusOntario, the Diversity Institute, and Magnet partner to release an analysis of available research and current trends about lifelong learning, delivery of micro-credentials around the world, and barriers to access. This report also offers a framework for future micro-credential development.<sup>15</sup> Findings are shared in a presentation at eCampusOntario’s fourth annual Micro-credential Forum.
- > **March 25, 2021:** Colleges and Institutes Canada (CICan) releases a national framework to guide micro-credential activity in the college sector.<sup>16</sup>
- > **April 12, 2021:** CICan releases an environmental scan which maps the micro-credential landscape across Canada.<sup>17</sup> This report also provides a comprehensive overview of publications focused on micro-credentials.
- > **May 5, 2021:** The Higher Education Quality Council of Ontario (HEQCO) releases *Making Sense of Microcredentials*, proposing a clear definition of micro-credentials and offering insight into their value for different stakeholder groups.<sup>18</sup> This report presents research conducted in partnership with CICan and the Business + Higher Education Roundtable (BHER).

The recent work of HEQCO, CICan, BHER, and others has contributed significantly to the emergence of a tentative consensus on the definition of a micro-credential in a Canadian context. HEQCO defines it as “a representation of learning, awarded for completion of a short program that is focused on a discrete set of competencies (i.e., skills, knowledge, attributes), and is sometimes related to other credentials.”<sup>19</sup> CICan’s working definition is “a certification of assessed competencies that is additional, alternate, complementary to, or a component of a formal qualification.”<sup>20</sup> Note the similarity: both use the language of a micro-credential being a representation of learning focused on a set of competencies that can be related to other credentials, formal or otherwise.

These definitions roughly align with the proposed definition advanced in the UNESCO report, though it is important to note that UNESCO places more emphasis on quality assurance: one of the four characteristics identified in the report is meeting the standards “required by relevant quality assurance.”<sup>21</sup> (eCampusOntario’s own definition is discussed in Chapter 2 through an exploration of its Micro-credential Principles and Framework.)

This movement toward consensus is mirrored in the increased confidence and enthusiasm of provincial leaders across the country as they expand their engagement with micro-credentials. British Columbia,<sup>22</sup> Quebec,<sup>23</sup> and Ontario<sup>24</sup> have all released statements in support of micro-credentials.<sup>25</sup> Ontario was the first province in Canada to designate micro-credential programming as eligible for student assistance, and, in so doing, defined a micro-credential program in regulation as a program that lasts less than 12 weeks in duration.

## Key Points of Convergence

This emerging consensus of a definition is not surprising given the broader conceptual convergence in the Canadian micro-credential community that was uncovered by the literature review conducted for this research project. As Table 1 indicates, this is most noticeable in five key areas:

1. Micro-credentials are related to a specific or discrete skill or competency.
2. Micro-credentials are awarded on the basis of an assessment.
3. Micro-credentials are employer- or employment-relevant.
4. Micro-credentials can be connected to other forms of accreditation or can stand alone.
5. Micro-credentials are courses of short duration.

## SKILL AND COMPETENCY FOCUS

A common characteristic of micro-credentials is that they focus on specific and discrete skills and competencies.<sup>26</sup> This specific focus is critical because it supports one of the key

value-adds offered by micro-credentials, namely that they enable more efficient and targeted skills development and training on the part of learners as well as more efficient recruitment and hiring processes for employers. By offering learners the ability to select a course and acquire only those specific skills or competencies they need, learners can avoid spending time and money on much longer training programs that include instruction related to other skills or competencies that are not relevant to them. Similarly, by offering employers the ability to recruit and hire workers who can demonstrate the specific skills needed, employers are able to hire on the basis of these skills and competencies with greater fidelity and confidence instead of using less granular proxies, such as traditional diplomas and degrees.

### Skills and competencies

Contrary to how these terms are often used, *skills* and *competencies* are not the same thing. They are distinct, but related. Employment and Social Development Canada (ESDC) provides a working definition of each:

- > “**Skills:** Developed capacities that an individual must have to be effective in a job, role, function, task or duty.”
- > “**Competency:** The combined utilization of personal abilities and attributes, skills and knowledge to effectively and reliably perform a job, role, function, task or duty.”<sup>27</sup>

In other words, competencies are the combination of skills, abilities, and knowledge needed for workplace success, while skills refer to more specific capabilities.

## **ASSESSMENT**

As is well documented in the recent report *Making Sense of Microcredentials*, recognition of the importance of assessment as a key feature of micro-credentials is growing in the Canadian micro-credential community.<sup>28</sup> Assessment is critical because it ensures that any learner who possesses a micro-credential has demonstrated their acquisition of the skills and competencies covered by it. When combined with the specific focus described in the preceding section, an assessment makes micro-credentials a useful tool for employers. The fact that learners are assessed also helps to distinguish micro-credentials from other similar accreditations, such as digital badges, the awarding of which may not depend on learners passing an assessment.<sup>29</sup>

Micro-credentials are compatible with a variety of assessment methods.<sup>30</sup> In general, however, Canadian stakeholders increasingly hold the view that assessment should be “authentic”; that is, focused on providing learners with an opportunity to demonstrate competencies in the context of job-related situations.<sup>31</sup>

There is also strong support for ensuring that assessments for micro-credentials have at least the same level of rigour as those used for more traditional post-secondary courses.<sup>32</sup> Indeed, one of the strengths of micro-credentials is that they enable flexibility in assessment, such as experimentation with a requirement for mastery (e.g., attainment of a 90% score on the assessment) instead of the traditional requirement of competence (e.g., 50% pass threshold).<sup>33</sup> This flexibility aligns with micro-credentials often being associated with learning that is largely online, thus allowing learners the opportunity to, for example, challenge assessments numerous times until they have mastered a concept, instead of traditional methods that typically provide only one opportunity to do so. It also aligns with

the desire expressed by some stakeholders to enable more personalized approaches to assessment.<sup>34</sup> Indeed, some stakeholders see this functionality as providing an important pedagogical opportunity to advance toward a more truly “competency-based” form of learning.<sup>35</sup>

## **WORKPLACE AND EMPLOYER RELEVANCE**

Micro-credentials offer the value of being able to be quickly designed to be relevant to employer and industry needs. Existing research indicates that this characteristic is appreciated by stakeholders. For example, one survey shows that “industry alignment” is seen as the fourth most attractive feature of micro-credentials by employers.<sup>36</sup> A more general survey of Canadians found that being “employer recognized” is the second most important feature of micro-credentials for this group.<sup>37</sup> Even more impressively, in a survey of representatives from colleges and universities, micro-credentials being industry aligned registered as their most important quality.<sup>38</sup> Additionally, because of their focus on workplace relevance, micro-credentials have the potential to play an important role in helping to foster improved systems of lifelong learning and continuous workforce up-skilling—a topic discussed in greater depth below.

## **FLEXIBLE INTEGRATION**

**Micro-credentials are not intended to replace traditional forms of higher education; rather, they are often designed to be connected to or integrated into an established post-secondary education system.<sup>39</sup> This describes the characteristic of *stackability*.**

For example, a stackable micro-credential is one earned by learners as a part of completing a traditional degree. Some existing

research suggests that while PSI partners view stackability as being a favourable characteristic, employers and learners do not grant it the same importance.<sup>40</sup> And in practice, while some micro-credentials are connected to more traditional accreditation, others simply stand alone on their own terms.

The term *latticing* is also used to refer to the integration of micro-credentials in established PSI programs.<sup>41</sup> Other terms used are *transcriptability* (the ability of micro-credentials to be integrated with traditional transcripts) and *extensibility* (micro-credential as a pathway to lifelong learning). Both are related to the concept of stackability and describe the ways in which micro-credentials are and can be related to traditional programming.

## LENGTH

Stakeholder opinions on the optimal length of time required to complete a course leading to a micro-credential vary. In one survey, representatives of PSIs rated the comparatively short duration of micro-credentials as one of their most attractive characteristics.<sup>42</sup> Conversely, when employers were asked about the relative importance of a number of features should they find themselves offering a micro-credential as a part of an internal staff training program, they rated a short duration as only of middling importance.<sup>43</sup> Importantly, however, this contradicts findings from studies done in other contexts where the long duration of some training courses was identified by employers as a key obstacle.<sup>44</sup> For learners, the short duration of the courses associated with micro-credentials helps make them more accessible than traditional full-time education, which tends to require more time and more expenses.<sup>45</sup> Short duration courses also mean micro-credentials may be able to help build additional pathways for learners to higher

education, thereby increasing its accessibility and inclusivity.

There is less agreement on what “short duration” actually means. PSIs have different ranges for course duration, and even within the same PSI, course duration can range from 25 to 175 hours.<sup>46</sup>

## What Can Micro-credentials Do?

Another way to understand micro-credentials is to ask not what they *are*, but what they can *do*. Simply put, micro-credentials offer a potential solution to a key need in today’s labour market. Micro-credentials can help the labour market validate prior experiences and knowledge that learners already possess, and they can help Canadians re-skill and retrain to address future skills needs in the economy. Additionally, micro-credentials represent an innovation that could promote access in learning and economic inclusion.

Currently, the labour market relies largely on certificates, diplomas, and degrees to represent the achievement of both depth and breadth of disciplinary knowledge. However, these credentials do not always clearly or explicitly recognize specific skills or competencies that are needed to be work-ready post-graduation, to be eligible for a promotion, or to change industries.<sup>47</sup> As mentioned above, micro-credentials can capture a specific skill or competency, making them powerful tools for empowering learners and demonstrating value to employers.<sup>48</sup>

Micro-credentials also have the potential to address future skills needs for the benefit of the Canadian economy. Workers will need to be increasingly adaptable and become lifelong learners.<sup>49</sup> The estimates for jobs at high risk from automation vary widely—from 6% to 59% over a timeline of 10 to 50 years.<sup>50</sup> Regardless

of which, if any, of these estimates is accurate, it is clear that workers will need to be able to up-skill and re-skill continuously throughout their careers to adjust to technological disruption and to take advantage of new opportunities available in the labour market.<sup>51</sup>

A micro-credential ecosystem can enable lifelong learning needed for this sort of constant adjustment by providing accessible and convenient “on-and-off” ramps into higher education or credentialed training pathways. Micro-credentials can also serve as flexible and low-barrier stand-alone offerings that enable learners to continue to build and acquire new skills throughout their lives as needed. In short, micro-credentials can be adapted to meet the varied needs of learners of all ages at various stages in their careers—both adult learners with specific skill needs and early-stage workers who want exposure to multiple areas of potential interest.

**Finally, micro-credentials can reach learners more quickly to support access and innovation in work and learning. They are flexible and cater to the needs of learners who are unable to engage in longer, traditional programs due to financial, employment-related, or personal barriers.**

Micro-credentials promote greater inclusivity and challenge prevalent assumptions about who post-secondary learners are, how they are taught, what they are taught, how they are assessed, and what the ideal outcomes of their learning experiences are. They offer an important opportunity to promote further engagement with the traditional education ecosystem,<sup>52</sup> especially by learners who have historically been blocked from doing so by various social and economic obstacles.

## Why an Ecosystem?

One of the key insights on which eCampusOntario has built its approach to micro-credentials is that success depends on the existence of a robust ecosystem. To better understand how such an ecosystem can be cultivated, eCampusOntario analyzed the functioning of the micro-credential ecosystem based on three key concepts:

- > **Trust:** The willingness to accept the validity of the actions of another agent, organization, or system.<sup>53</sup> Trust from learners and employers in particular has been a central concept in many publications on micro-credentials to date.<sup>54</sup>
- > **Value:** The thing an agent or organization is willing to exchange for something owned or held by another agent or organization.<sup>55</sup> Evidence of achieved learning or ability is frequently cited as a key component of value in a micro-credential.<sup>56</sup>
- > **Exchange:** The action of passing value from one organization or agent to another. In the world of micro-credentials, exchange is often underwritten by assessment and facilitated through a digital trail or record.

Today, a strong micro-credential ecosystem is emerging, but is not yet established.<sup>57</sup> While micro-credentials offer significant promise for improvements to education and skills training and development, they are still in the process of fulfilling that promise. This state of affairs is the result of a number of challenges and obstacles hampering the greater adoption of micro-credentials.

One key problem is that the micro-credential landscape is uneven. There is significant variation in perceived value, assessment methods, and design (a problem likely connected with the lack of a generally

accepted definition).<sup>58,59</sup> For example, some courses accredited by micro-credentials have not provided learners or partners with positive experiences because the learners were insufficiently prepared and not sufficiently supported.<sup>60,61</sup> This variation in quality and experiences, coupled with low awareness of micro-credentials, has slowed the growth of an ecosystem. It has also slowed the development of trust, particularly among employers who are more interested in “off-the-shelf” solutions they can use right away than in experimentation.<sup>62</sup>

**Developing an effective micro-credential ecosystem depends on a number of interested and interconnected partners working together. Principal among these are learners, employers or community partners, and PSIs collaborating to develop micro-credential programs.**

For example, by working together, these partners can create systems in which information about what learners can do and know is shared easily, transparently, and dependably.<sup>63</sup> This sort of collaboration is essential for delivering skills training that is relevant to both learners and employers and for verifying the acquisition of skills, as represented in Figure 1.<sup>64</sup> In other words, collaboration enables the creation of the trust, value, and exchange critical to the emergence of a robust ecosystem.

**FIGURE 1**  
The Micro-credential Ecosystem



Addressing the awareness gap is also key to fostering growth in the micro-credential ecosystem. One recent report highlights the extent of this gap, presenting survey results that found 59% of employers “were ‘not familiar at all’ with the term [micro-credentials],”<sup>65</sup> “only one-quarter of the Canadians surveyed had heard of microcredentials,”<sup>66</sup> and only 19% “could provide some kind of definition.”<sup>67</sup> More positively, the survey found that once respondents were provided with a definition, their interest in micro-credentials was high, with 74% of working-age Canadians expressing interest in them for either professional or personal development, or both.<sup>68</sup>

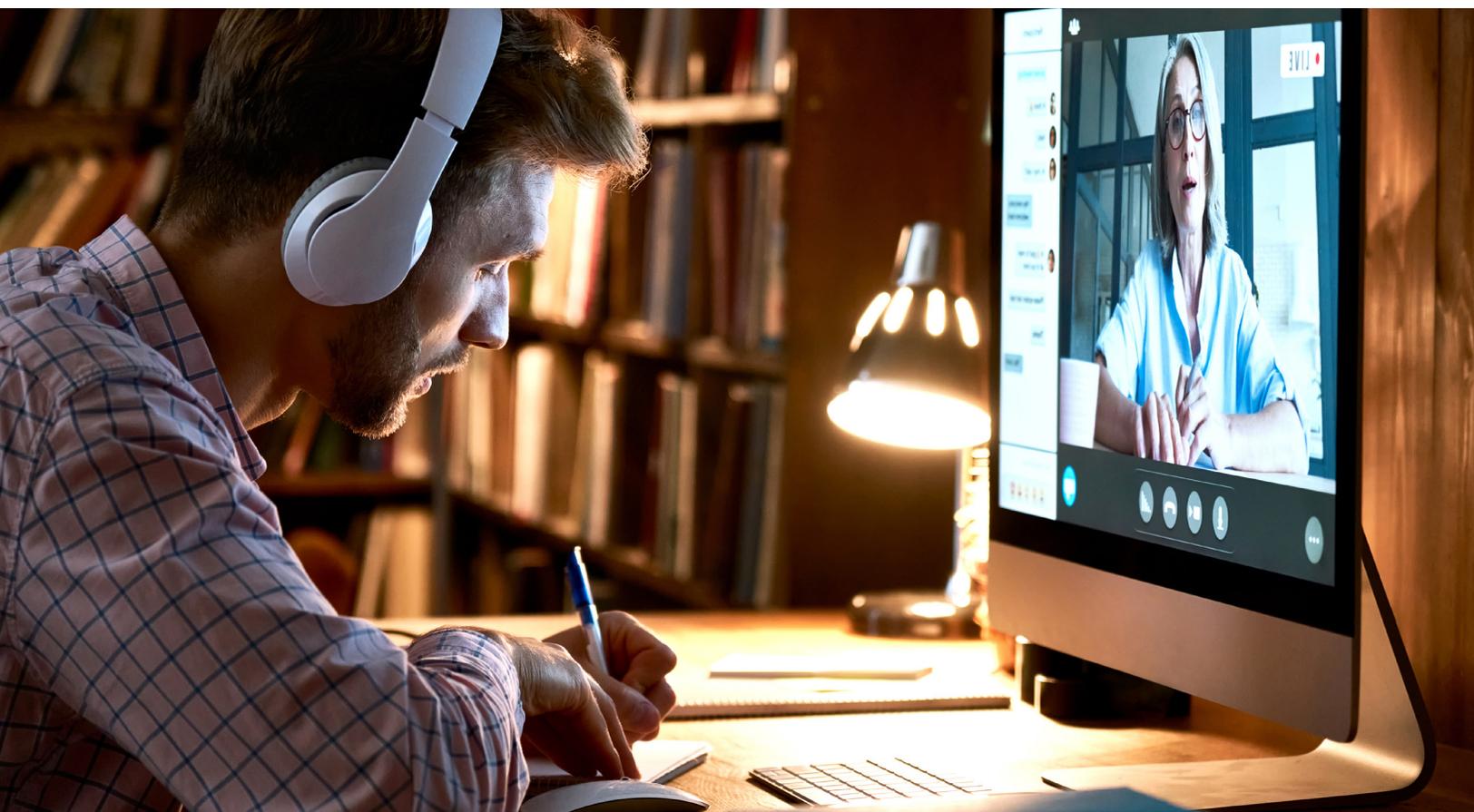
The features of a healthy and functioning micro-credential ecosystem are described in greater detail in the context of the examination of eCampusOntario’s Micro-credential Principles and Framework, which is presented in the next chapter.

## Conclusion and Chapter Summary

Micro-credentials have the potential to fill skills gaps in both the current and future labour market. Although many stakeholders in the micro-credential ecosystem have different definitions and understandings of micro-credentials, significant progress has recently been made toward a consensus of definition and conceptual convergence, both globally and in Canada. Increasingly, Canadian stakeholders see micro-credentials as being (1) defined by a focus on specific skills and competencies; (2) awarded on the basis of assessment; (3) employer- or employment-relevant; (4) flexible in terms of their connection to other forms of accreditation; and (5) accrediting courses of short duration. These common elements largely align with the results of the consultations undertaken as a part of this research project, with results discussed in the next chapter.

Micro-credentials have a lot of promise, which is why it is important to separate the genuine opportunities from the significant hype that has built up in recent years. Micro-credentials offer the possibility of making higher education more convenient, flexible, and accessible and, in so doing, more inclusive and diverse. These qualities also imbue micro-credentials with the ability to help bring the long-sought-after goal of enabling lifelong learning closer to full realization.

Seizing these opportunities, however, requires significant progress in building a robust ecosystem for micro-credentials and closing the awareness gap that continues to exist. The three key qualities identified—trust, value, and exchange—are crucial for the cultivation of such an ecosystem. With this conceptual understanding in place, the following chapters focus on reporting on the existing efforts by eCampusOntario to build such an ecosystem.



# Chapter 2: Micro-credential Principles and Framework in Action

Since 2017, eCampusOntario has been actively building a micro-credential ecosystem in Ontario.

This has included co-creating the Micro-credential Principles and Framework with education and employer partners, and running a program of 36 micro-credential pilot projects with partner PSIs in Ontario, which puts this framework into action. The pilots have focused on soft skills, technology, health and human services, manufacturing, natural resources, and research, with the aim of improving our understanding of the impact of micro-credentialing.<sup>69</sup>

This chapter presents the results of an evaluation of eCampusOntario's Micro-credential Principles and Framework. It begins this with an overview of the Principles and Framework, the process through which it was created, and its key features. The framework was designed to provide a foundation on which future micro-credential programming could be created and was used to launch the 36 pilot projects mentioned above. The goals set for the pilots were to:

> Introduce micro-credentials to large parts of Ontario's post-secondary education system that had previously not used them.

- > Link PSIs to employers eager to improve their connections to the institutions training their future workers.
- > Help to test the effectiveness of and refine the framework itself.

To assess how the framework has been used in the pilot projects and how useful it has been, eCampusOntario collected data using a mixed-methods approach that included surveys and focus groups. Online surveys were sent to the pilot project leads at the Ontario PSIs, and five focus groups were conducted with pilot projects leads and employer partners that had participated in the micro-credential pilot programs. Results from this data collection are presented below along with some initial analysis, which is organized by the following six themes:

1. **Utility of eCampusOntario Principles and Framework**
2. **Relevant skills and competencies**
3. **Be responsive, agile, and flexible**
4. **Authentic assessment**
5. **Meeting learner needs**
6. **Collaborative development**

## The Micro-credential Principles and Framework

The Micro-credential Principles and Framework was the result of many years of work. Since 2016, eCampusOntario has been engaged in conversations about the alternative recognition of learning. In 2019, it held its second annual Open Badge Forum on the topic, where a Call to Action asked representatives from post-secondary education and industry to develop a framework for micro-credentialing in Ontario. In close consultation with a working group composed of employers, educators, government representatives, and system-level post-secondary organizations in

Ontario, eCampusOntario developed the first iteration of its Micro-credential Principles and Framework during the summer of 2019.

The Micro-credential Principles and Framework is a foundation on which future micro-credentialing programming can be designed and, from the perspective of eCampusOntario and its partners, answers the question, What is a micro-credential? The framework consists of six elements, illustrated in Figure 2.<sup>70</sup> The framework was first publicly shared in November 2019 and provides a common standard on which to collaborate and create micro-credential programming that is both relevant and targeted to competencies and skills.

FIGURE 2

### eCampusOntario's Micro-credential Principles and Framework



#### Issuing Body

Micro-credentials will be issued by an established agency, organization, institution, or employer.



#### Competency/skills targeted

Micro-credentials will adhere to harmonized skills and competency language and will be aligned with a common competency framework such as ESCO.



#### Outcomes

Micro-credentials will recognize performance competencies explicitly aligned to underlying knowledge, attitudes, and skills.



#### Summative assessment

Micro-credentials will require evidence of achievement of outcomes. Evidence will be embedded and visible to employers.



#### Transcriptable

Micro-credentials will be compatible with traditional transcripts, where possible.



#### Partner endorsement

Micro-credentials will be validated by industry partners/external bodies, where possible. This validation will confirm that 1) the competency is in demand by industry, and 2) the established assessment is reflective of job performance in that industry.

Since being publicly shared, the framework has been tested in practice through 36 micro-credential pilot initiatives across Ontario. Each involved a PSI partnering with employers to develop, deliver, and assess the micro-credential, guided by the framework:

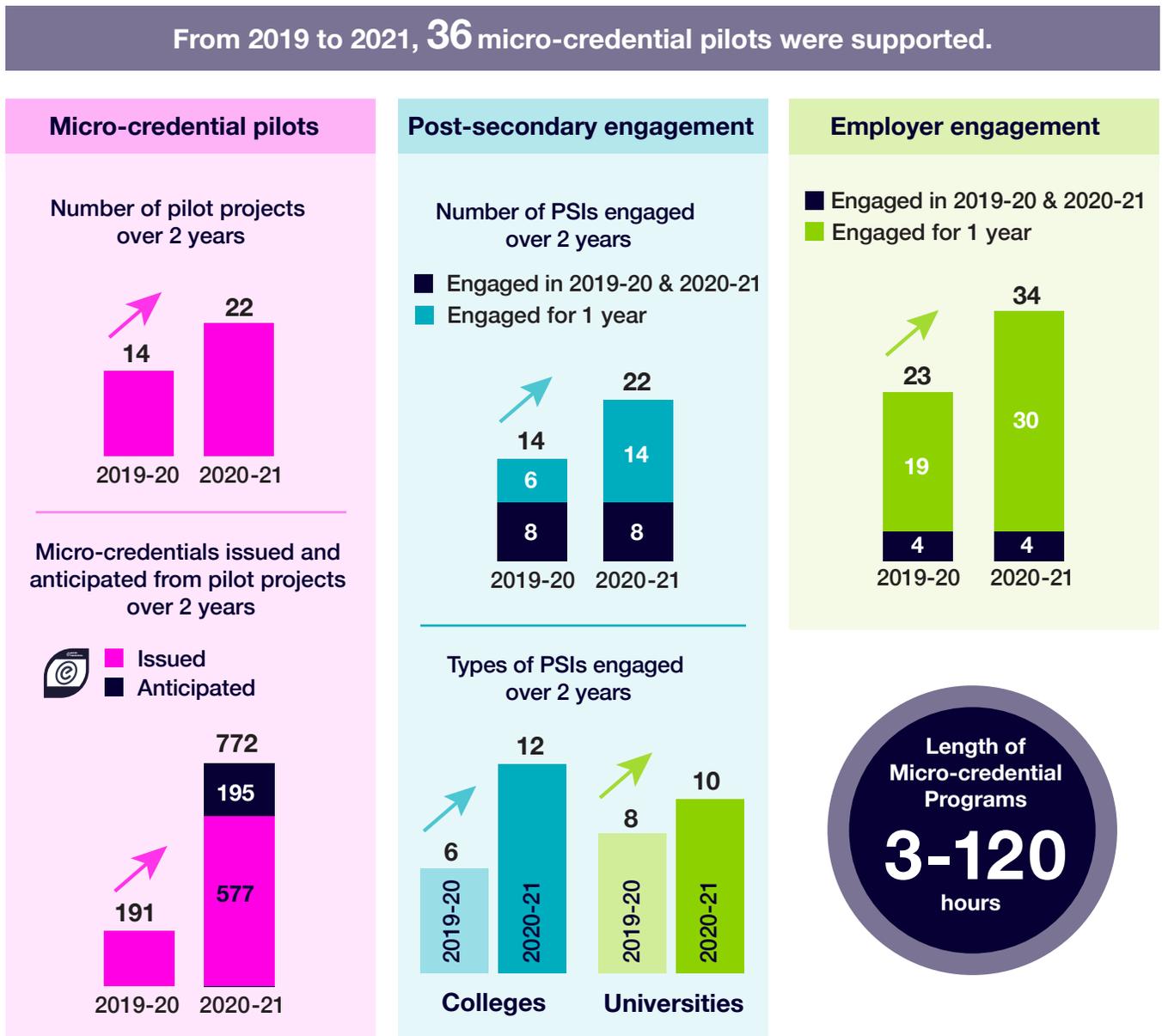
- > 14 PSIs engaged in 2019–20, and 22 engaged in 2020–21
- > 23 employers engaged in 2019–20, and 34 in 2020–21

Out of these micro-credential pilot projects, a large number of micro-credentials have been issued and anticipated:

- > 191 issued in 2019–20
- > 772 (195 anticipated and 577 issued) in 2020-21

The length of micro-credential programs ranged from 3 hours to 120 hours. Figure 3 presents a summary of the pilots.

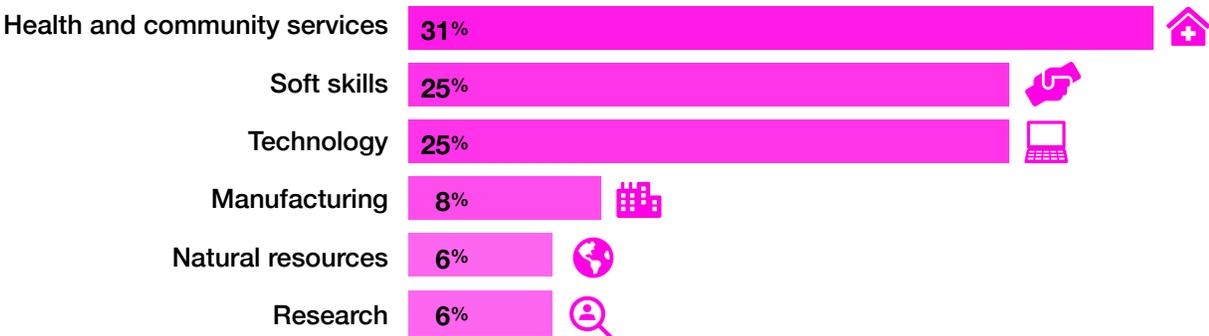
**FIGURE 3**  
Summary of eCampusOntario Micro-credential Pilots



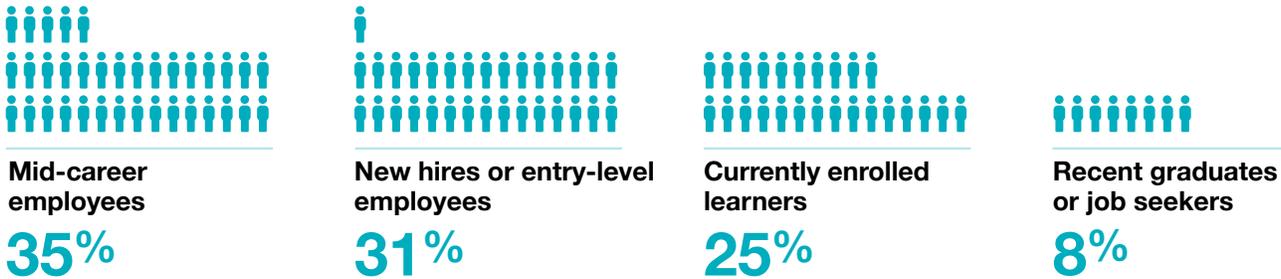
Most of the micro-credential pilots focused on developing competencies in three areas: health and community services (31%), soft skills (25%), and technology (25%). The pilots were targeted mostly toward mid-career employees (35%) and new hires or entry-level employees (31%). There were a variety of assessment strategies; the most common among them were the exam/quiz (18%), employer/industry assessment (18%), and simulation/case study (16%). Reflection (14%) and video assessments (14%) were also common modes of assessment. Most of the micro-credential pilots were not for credit (86%).

**FIGURE 4**  
Summary of Features of eCampusOntario Micro-credential Pilots

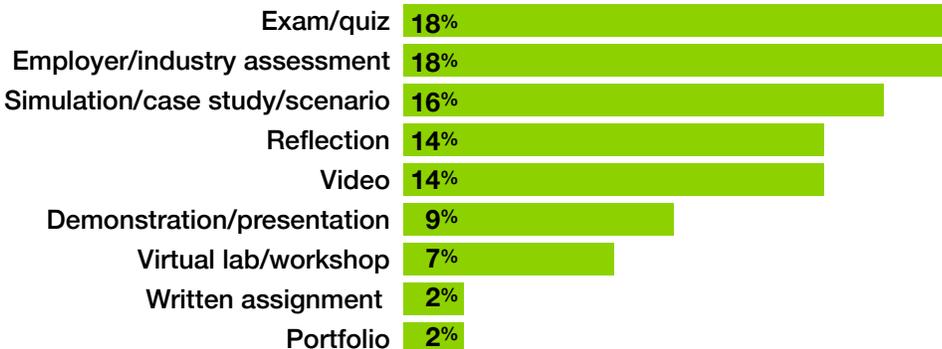
**Types of learner competencies**



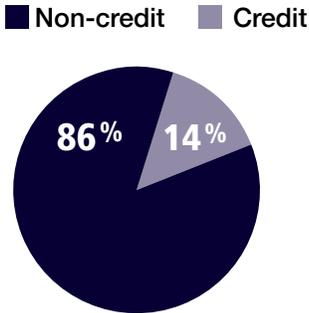
**Targeted career stage**



**Assessment strategies**



**Credit and non-credit**



The Micro-credential Principles and Framework is an openly licensed living document designed to be updated and adapted as more is learned about micro-credentials in practice. Exercises like this research project have been key in shaping the framework's many iterations and will continue to influence its evolution. More specifically, projects like this identify the potential and limitations of supports such as the framework, how they are put into practice, and how we can build on these experiences to further develop post-secondary education in Ontario.

## Method

This research project used a mixed-methods approach to obtain feedback on eCampusOntario's micro-credential pilot program, understand the lived experiences of those engaged with the pilot program, and explore perceptions and beliefs about the future of micro-credentials in Ontario. Data was collected using a survey and through five focus groups with institutional and employer partners (including employers at for-profit and

community organizations). All participants were engaged in the development of one of the 36 micro-credential pilots (Table 2).

Survey invitations were sent to approximately 50 individuals employed by PSIs. Twenty-four individuals completed it, representing a response rate of 46%. The survey gathered targeted feedback about the most and least important elements of the framework, as well as suggestions about how it might be adapted to reflect lessons learned from micro-credential development.

Focus groups were also organized for pilot project leads and employer partners. These focus groups explored how the framework was put into action, general attitudes toward micro-credentials, and what is needed as Ontario continues to build and grow a micro-credential ecosystem.

The qualitative components of this project capture the ideas, experiences, perceptions, and insights of the micro-credential pilot teams at a specific moment in time. Importantly, this study was not designed to be comprehensive or exhaustive, or to be



a scientific program evaluation of the pilot projects or the Principles and Framework. The consultations undertaken, which did not include engaging with learners to access their experiences and had only limited engagement with employers, were not wide enough. Rather,

the purpose of the study was to offer a portrait of the lived experiences of participants as they engaged in the micro-credential pilot program and to draw learnings from this experience and from participants' informed feedback.

**TABLE 2**  
Summary of Activity and Participants

Activity	Participants	Number of Participants
Online survey	Micro-credential pilot teams	<p><i>n</i> = 24</p> <p>Participants from Ontario colleges</p> <ul style="list-style-type: none"> <li>&gt; <i>n</i> = 11</li> <li>&gt; Represent 46% of survey participants</li> <li>&gt; Represent 8 of the 15 colleges that participated in the micro-credential pilots (53%)</li> </ul> <p>Participants from Ontario universities</p> <ul style="list-style-type: none"> <li>&gt; <i>n</i> = 13</li> <li>&gt; Represent 54% of survey participants</li> <li>&gt; Represent 11 out of the 13 universities that participated in the micro-credential pilots (84%)</li> </ul>
Focus groups— institutional	Micro-credential pilot leads	<p><i>n</i> = 17</p> <p>Included representation from 17 of the 28 colleges and universities that participated in the micro-credential pilot programs (61%)</p>
Focus groups or individual interviews— employer partners	Micro-credential employer partners	<p><i>n</i> = 7</p> <p>Included representation from the following sectors: non-profit, business associations, insurance, education, healthcare, social enterprise, and 7 of the 53 employer partners that participated in the micro-credential pilot programs (13%)</p>

The findings of this project were inductively categorized and synthesized into the six themes listed in Table 3. The themes correspond to key points of convergence that have significance in the context of the ideas that informed and decisions that impacted how the framework was constructed, or that are likely to influence how it evolves in the future. The remainder of this chapter explores these six themes.

**TABLE 3**  
**Summary of Themes and Key Findings**

Theme	Key Finding
1. The utility of eCampusOntario Principles and Framework	Participants found the Principles and Framework to be a useful blueprint that supported the development of micro-credentials.
2. Relevant skills and competencies	Participants valued the focus of micro-credentials on development of relevant and endorsed specific skills and competencies.
3. Being responsive, agile, and flexible	Participants emphasized the need for micro-credentials to have stand-alone value for learners looking for flexible and “on-demand” offerings. Participants indicated that while micro-credentials have the potential to be leveraged for flexible pathways and stacked into traditional post-secondary programming, this remains a challenge in current contexts and governance structures (e.g., quality assurance processes).
4. Authentic assessment	Participants saw the need for the assessment of skills and competencies to be authentic and relevant to real-life workplace scenarios.
5. Meeting learner needs	Micro-credentials have the potential to meet the needs of learners at all ages and stages of career, including providing opportunities for re-skilling and up-skilling.
6. Collaborative development	Participants valued collaborative contributions from institutions, community partners, employer partners, and other stakeholders.

## Theme 1: The Utility of eCampusOntario Principles and Framework

**Key Finding:** Study participants found the Principles and Framework to be a useful blueprint that supported the development of micro-credentials.

A total of 75% of survey respondents agreed or strongly agreed that the eCampusOntario Principles and Framework was a useful blueprint when they were developing their micro-credential ( $n = 18$ , Figure 5).

### FIGURE 5

#### Utility of eCampusOntario Principles and Framework

Please rate your agreement with the following statement: “The eCampusOntario Principles and Framework was a useful blueprint when I was developing my micro-credential.” (Question 3)



■ Strongly Agree   ■ Agree   ■ Neutral   ■ Disagree   ■ Strongly Disagree

In the focus groups, participants reported that the Principles and Framework was helpful in the development of their micro-credential programs. It was described as “*very helpful*,” “*highly applicable*,” “*extremely beneficial*” and “*provided valuable direction*.” Some participants indicated the Principles and Framework was perhaps too open-ended and broad, but some acknowledged that it was necessary for the Principles and Framework to be designed in such a way. One pilot lead summarized by saying:

*When I first looked at [the Principles and Framework] and started working with it, I felt ... there should be more specifics, but when we started to build our own framework, we started to understand why it's...more open because it needs to be flexible because you're reaching so many different potential areas, right? That you can't be too prescriptive, right. You have to leave it open...I understand why the eCampus framework is pretty open in terms of specifics because you can't and make it useful for everyone.*

## Theme 2: Relevant Skills and Competencies

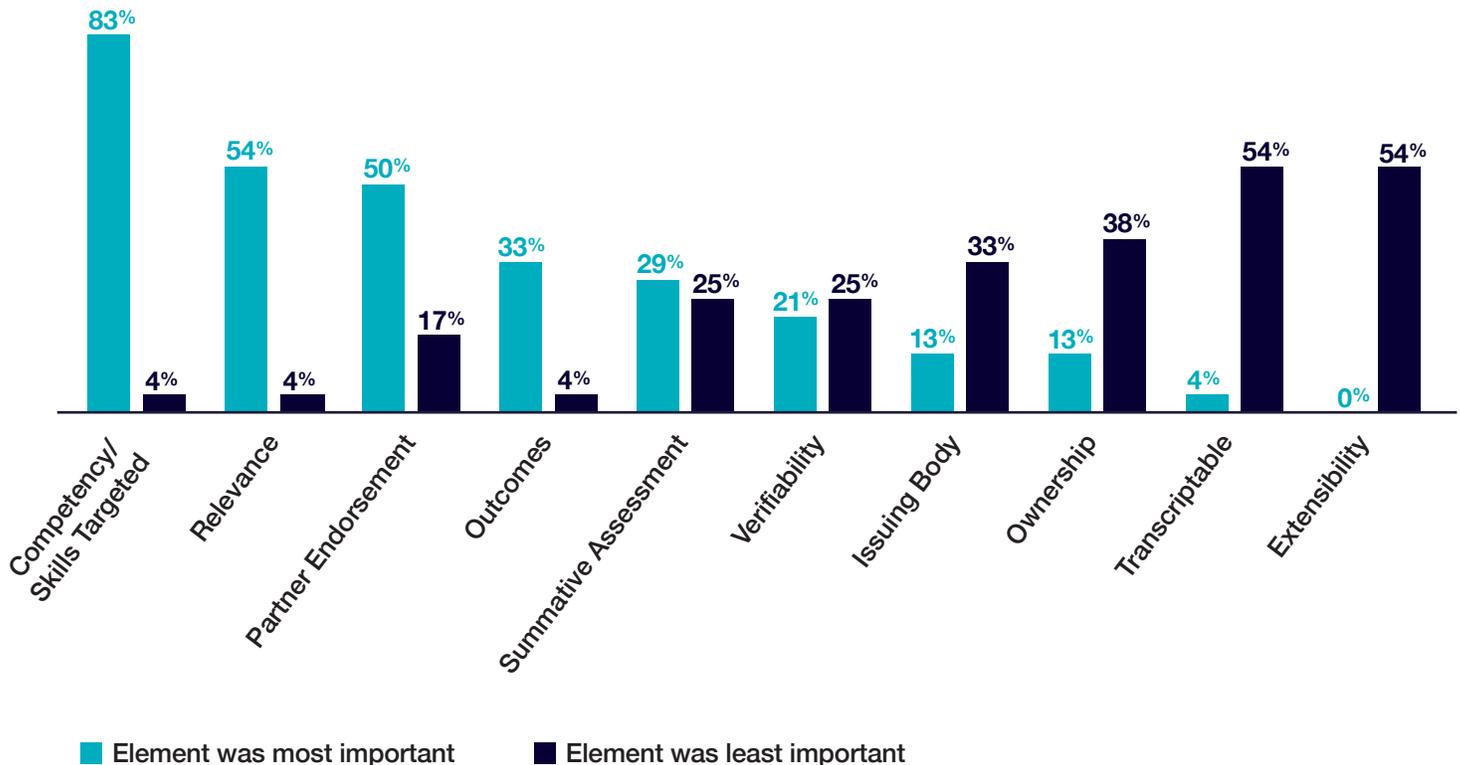
**Key Finding:** Study participants valued the framework’s focus on developing and endorsing relevant and specific skills and competencies.

Study participants responded that targeting a skill or competency is a core micro-credential characteristic. In fact, almost 85% of survey respondents selected “Competency/Skills Targeted” when asked to identify the three elements of the Principles and Framework they thought were the most important ( $n = 20$ , Figure 6). The majority also highlighted “Relevance” (54%,  $n = 13$ ) and “Partner Endorsement” (50%,  $n = 12$ ) as being most important.

**FIGURE 6**

### Most Important and Least Important Elements of the eCampusOntario Principles and Framework

Based on your experience developing your micro-credential pilot, which three elements of the Principles and Framework were most important which were least important in your work? (Questions 4 & 5)



The focus group participants suggested that designers should first ensure a micro-credential is relevant to current social and economic contexts, and from there determine the duration of the micro-credential. An employer partner explained the importance of specificity, relevance and timing of a micro-credential:

*It's not the broad brush. It's drilled down much more to a very targeted level. That's why it's micro because it's not the full programming. You know, to make people sit through two years of generic classroom stuff, when all they need is a very specific skill set in this world where we're having to pivot more and more, faster and faster. By the time you graduate from your program, it's obsolete.*

As discussed earlier, the ideal specific length or duration of a micro-credential program is often contested. Interestingly, study participants pushed back against the idea that duration should be a defining element. In a response to an open-ended survey question, one respondent said, “[Employers] want to know that the learner actually demonstrated the skill not just spent hours in a seat.” One pilot lead concurred, stating, “There’s nothing magic about thirteen weeks, three hours a week.”

However, some study participants did emphasize the value of the “micro” in micro-credentials and of ensuring their duration is relatively short. One focus group participant described micro-credentials as a “bite-size improvement to your skills.” Two others explored the idea of micro-credentials as a menu that learners could use to pick and choose offerings most useful to them (“I think having a menu of options is important”).

### Theme 3: Being Responsive, Agile, and Flexible

**Key Finding:** Study participants found it challenging to fit micro-credentials into existing governance structures (e.g., quality assurance processes). However, participants acknowledged the future need for structure of micro-credentials to ensure “stackability” into traditional post-secondary programming.

In the survey, the majority of pilot leads identified “transcriptability” (i.e., being compatible with traditional transcripts where possible, 54%,  $n = 13$ ) and “extensibility” (i.e., facilitating a continuous pathway for lifelong learning where possible, 54%,  $n = 13$ ) as two of the least important components of the Principles and Framework (Figure 6). This suggests that those who have experience developing and delivering micro-credentials are more focused on their competencies and relevance than on how they fit into the existing systems and processes. Furthermore, developing “stackable” micro-credentials is not a priority for those engaged in the work of developing them.

Focus group participants pointed out that the flexibility and relevance promised by micro-credentials is at odds with existing governance and credentialing systems at Ontario PSIs. This conflict is a source of confusion for stakeholders and a barrier to transcriptability. One pilot lead stated that stakeholders are “trying to slap a label on [micro-credentials], to make [them] fit into our current system of degrees and programs and diplomas and credit hours when the whole point is to give people something different.” Another pilot lead said, “Transcriptability remains a challenge. Again, as micro-credentials are fairly new to

*our college and Registrar’s Office, we’re still working through how to demonstrate micro-credentials as a program and/or pathway on a transcript.”*

Additionally, quality assurance processes present obstacles that affect the ability of micro-credentials to respond to urgent and relevant needs of learners in their work and life. Three pilot leads made the following comments:

- > *“While QA [quality assurance] is very important, it’s going to be a hold up for development.”*
- > *“We have established a number of different steps from approval, from the academic area, approvals from academic quality to the [vice presidents]. It’s quite time consuming.”*
- > *“There is still a lot of operational work to be done to set up systems and academic policies and processes before we actually deliver the new program.”*

Regardless of the complexity of governance, the ability of micro-credentials to provide credentials to learners was valued by employer partners, made clear by the feedback received from the pilots. As one employer partner said, *“It’s credentialed, [and] I think with that comes a certain level, an expectation that it’s been validated and qualified and that you can trust it as an offering—a training offering.”*

The “credential” in “micro-credential” was identified by employers as a key motivation for learners to participate and partly what they valued most as recognition of their learning.

Another employer partner noted:

*The acknowledgement and accreditation that goes along with the micro-credentials...you have this credential, it adds to your talent stack, you put it on your resume, you put it on your LinkedIn profile. All those things, you know, say something about the individual’s value to the employer.*

Finally, in the focus groups we heard that stackability, or the option to complete micro-credentials as a part of the journey toward program or degree completion, was not a key characteristic for participants. Instead, some expressed concerns that conversations of stackability limited the impact of micro-credentials for learners looking for flexible, on-demand offerings. We heard that while most learners were still unfamiliar with the term *micro-credential*, they valued how micro-credentials had the ability to be personalized to needs and goals, but at an accessible price point and shorter duration. From a post-secondary perspective, however, we heard that these needs are going to be *“the hardest for us to actually implement.”*

Overall, we heard that for micro-credentials to reach more learners, they need to have stand-alone value outside of stackability toward a larger credential. While the option of stackability may provide learners with more choice—for example, to continue or return to a learning pathway started through a micro-credential—the message was that it should not come at the expense of a micro-credential that has value on its own.

## Theme 4: Authentic Assessment

**Key Finding: Study participants saw the need for the assessment of skills and competencies to be authentic and relevant to real-life workplace scenarios.**

Approximately one-third of survey respondents indicated that outcomes (33%,  $n = 8$ ) and summative assessment (29%,  $n = 7$ ) were important elements in the development of micro-credentials (Figure 6).

Having an assessment of learning is one part of what distinguishes an educational offering as a micro-credential. However, a one-size-fits-all approach to assessment does not work. While identifying that assessment is a critical component of any micro-credential, pilot leads also emphasized the need for *authentic* assessment. As one focus group participant put it:

*If you're truly going to assess a workplace competency, then the assessment has to reflect that. So it's not an assessment of what a learner would do at the college or at the university. It truly needs to be an assessment of what they would do in the workplace.*

Authentic assessment asks a learner to do or demonstrate a specific skill, competency, or attitude as it relates to a particular workplace or in their personal life. One pilot lead in the focus groups described authentic assessment as a *“demonstration of the skill, not just taking*

*a test.”* Authentic assessments aim to assess a learner’s skills and knowledge while also providing opportunities to practise, access resources, and get feedback while completing a complex task.<sup>71</sup>

When developing assessments, we heard that it is important to consider how the assessment aligns with the work and needs that the learner will navigate after achieving the micro-credential. This is an active rather than passive process, one that requires a shift in orientation for both learners and instructors. As one focus group participant shared about learner perceptions of an online micro-credential: *“I don’t think they [learners] understood it was going to require so much active participation on their part...It’s applied. It’s immersive... the learners need to be prepared for what the learning experience itself will be like.”*

It may be necessary to come to consensus with partners involved in developing a micro-credential to determine what kind of assessment fits best, as not everyone agrees on what “authentic assessment” requires. For example, one focus group participant stated:

*[The learners] have to be there. They have to see it. They have to do it, touch it by their hand. Sending in a video to assess it online may not always be acceptable. Faculty and learners need to be there. It’s like a work lab.... so there was always a back and forth talking about these matters.*

## Theme 5: Meeting Learner Needs

**Key Finding: Micro-credentials have the potential to meet the needs of learners at all ages and stages of their careers, including providing opportunities for re-skilling and up-skilling.**

In survey responses, micro-credentials were identified as most useful for people looking to improve skills and demonstrate competencies (average of the weighted ranking scores for this response = 4.59) and people who are retraining and re-skilling (average of the weighted ranking scores for this response = 4.48, Figure 7).<sup>\*</sup> These learners might include people preparing to work in a new sector or job, learning while also working full time, or demonstrating workplace-ready skills to complement an existing degree for professional development or to recognize prior learning.

**FIGURE 7**  
Perceived Usefulness of Micro-credentials for Different Groups

Who do you think a micro-credential is most useful for? (Question 8)<sup>\*</sup>



<sup>\*</sup> For this question, participants were asked to “Please rank the following options, with 1 being most useful.” For ease of interpretation, this figure displays the average of the weighted ranking scores derived from these responses. To weigh the scores, each level of ranking was assigned a corresponding rate (i.e., a ranking of 1 was given a weight of 6). For each item, the number of instances of each rank order was multiplied by the respective ranking weight, totalled, and averaged across number of responses, thus providing an average of the weighted ranking scores.

During the employer and community partner focus groups, an informal poll was used to explore participant motivations for using micro-credentials. All employer and community partners indicated that they were using micro-credentials to up-skill existing employees or for professional development. Some participants indicated they were using micro-credentials to create programming for a new skill (e.g., training on a new technology or emerging trend). Others were using micro-credentials to address a skills gap in potential hires.

During the focus groups, micro-credentials were also identified as a potential retention strategy for employers. By offering micro-credential opportunities and training to employees as a form of professional development, it might help to retain skilled personnel in competitive markets where earning “\$1 more an hour” is often enough of an incentive for an employee to leave. One industry partner stated:

*We’re always looking for resources and support...to provide our employees to make sure they’re happy and...the economy is thriving locally. So I could definitely see just having a micro-credential like this be added to our toolbox to support the top employers.*

Both micro-credential pilot leads and employer partners described a diverse set of learners and associated needs that prioritized short-duration, credentialed learning relevant to a particular work or social context. A micro-credential was described by one employer partner as “small in terms of name, but big in terms of impact, especially for the individuals and students who may be taking and enrolling themselves in these.”

## Theme 6: Collaborative Development

**Key Finding: Study participants valued collaborative contributions from institutions, community partners, employer partners, and other stakeholders.**

In the focus groups, employer and community partners reported that they valued micro-credentials, indicating that learners were motivated by earning the credential and being able to list it on a resume or share it digitally on platforms like LinkedIn. The credential was particularly important for newcomers looking for work, individuals looking to re-skill or experiencing joblessness, and small business owners, many of whom do not have formal training. One employer partner said, “I was so delighted that some of the business owners who are...working crazy hours now because of COVID still wanted to do this program; they saw value.”

However, some employer and community partners noted that they did not have as much time as they would have liked to contribute to the micro-credential development. Sometimes, the timeline was too short or aligned with particularly busy periods in their organization. One employer partner stated, “I personally would have liked to spend more time...reviewing the material, being able to provide as much constructive feedback in the development of the micro-credential as an employer that I don’t feel like I had that.”

Focus group participants discussed the value of collaborative partnerships, even though these can sometimes be tricky to establish and navigate. One pilot lead remarked, “When you do get that right partner and you work collaboratively, I can feel that energy and that it works really well.” A pilot lead summarized

the process of educational development as follows:

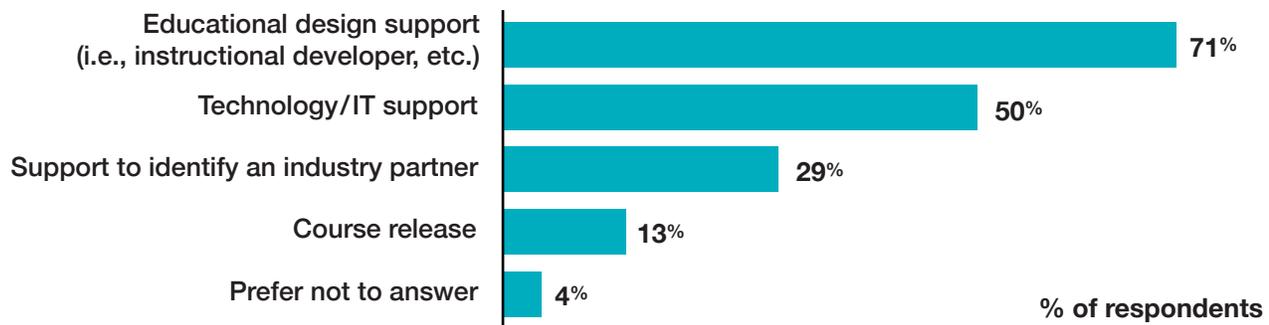
*We had a few different industry focus groups and they gave us so much wonderful information. I'm sure we could have put together a four-year degree program on the basis of that. So it was sort of trying to narrow and focus those expectations into a micro-credential and then in and around*

*some things around design need for competency-based designing authentic assessments and particularly for online and remote delivers.*

The results from the survey of project leads confirmed that supports and resources related to educational development were the most helpful in the development of micro-credentials ( $n = 17$ , 71%, Figure 8).

**FIGURE 8**  
Resources and Supports for Micro-credential Development

What support/resources were most helpful to you in the development of your micro-credential? Select all that apply. (Question 7)



From employers, we heard there is room for PSI and community and employer partners to work together, to collaborate, and to create micro-credentials. One pilot lead said:

*There's always a balancing act, generally we don't promote or share something if it's going to directly compete with what we're offering. I mean, that's just good business sense. But, recognizing there's lots of room in the community and in the whole world in general for learning, and who is doing what, we're always happy to share where there's gaps and where they're continuing.*

When asked whether they would value a micro-credential developed in partnership with another organization or umbrella organization, both pilot leads and employer partners indicated they viewed this as a favourable option. One employer partner stated, *"I think it would be great to have umbrella organizations or employers invested and developing, helping to develop the programming."*

Many participants supported the idea that a micro-credential does not need to be developed by their own organization to have value. Instead, having an employer endorsement of a micro-credential could be

helpful if the right partners buy-in. As one pilot lead said:

*If a particular organization endorses a credential, will a similar organization accept the credential as having value? The same question applies for industry-based assessment. Are employers/organizations willing to publicly endorse the skills of a particular candidate and, if so, will other employers accept these endorsements?*

It is possible that working with an umbrella organization might mean that particular employers could benefit from the development of a micro-credential without having contributed to it. This might raise “free rider” concerns on the part of those doing the work, but overall, being able to access the benefits of a micro-credential without having to contribute to its development was viewed as a positive opportunity. One employer partner noted, *“It’s for the greater good...we’re in this village together.”* Overall, there appears to be an appetite for further collaboration on the development of micro-credentials across employer organizations, and perhaps across colleges and universities, something that could yield powerful results by creating a collective good for these sectors.

## Conclusion and Chapter Summary

The eCampusOntario Principles and Framework has the potential to create robust collaborations between stakeholders in the micro-credential ecosystem. Thirty-six pilot projects were created using the Framework, and study participants shared their experiences with the Framework and Principles and the pilot projects through a survey and five focus groups attended by pilot leads and employer and community partners. They highlighted the need for micro-credentials to focus on relevant skills/competencies, authentic assessment, and meeting learner needs. The participants emphasized that micro-credential development should be collaborative, responsive, agile, flexible, and that momentum can be lost when trying to fit micro-credentials into established systems of governance.

Overall, study participants shared positive feedback on the Framework and Principles and their experiences in the pilot projects. It should be noted, however, that all employer and community partners who participated in the focus groups were identified for participation in the groups by pilot leads and thus should not necessarily be considered representative of all employer and community partners. Nonetheless, the rich feedback from this group provided additional nuance that should help refine future iterations of the Framework and Principles and make it a more useful tool. In particular, the finding that transcriptability and extensibility were seen as relatively unimportant by many employer and community partners, despite the heavy focus on these elements in the more theoretical literatures.

# Chapter 3: Scaling the Micro-credential Ecosystem

The Principles and Framework is a living document, and revising it based on lessons learned from practice is a key part of eCampusOntario’s vision for how to support the evolution of micro-credentials. This chapter explores the five key findings from our investigation of eCampusOntario’s micro-credential pilots under the following headings:

1. Balancing common definition and flexibility
2. Filling the awareness gap
3. Improving assessments in the micro-credentials ecosystem
4. Meeting learner needs by meeting employer needs
5. Collaborating in the micro-credentials ecosystem

## Balancing Common Definition and Flexibility

In a space where even the most basic definitions are contested, a key part of the value offered by the eCampusOntario Principles and Framework lies in the elements of standardization it provides. These common elements are intended to give clear meaning to micro-credential programs that are built on the Principles and Framework—one that stakeholders in the education and skills development ecosystem in Ontario agree on. Simultaneously, the Principles and Framework was designed to be flexible enough to support a wide range of PSIs—each with their own history, culture, and context—in launching their own micro-credential programs. Thus, the Principles and Framework is designed to be non-prescriptive and to give institutions the flexibility to both apply it to their individual contexts and to build on it in a way that makes sense to them.

Certainly, the common elements were appreciated. In the focus groups, one of the pilot leads stated, “[I]n this very uncertain landscape, it is especially important to have [the Principles] as a grounding touchstone.” Six others spoke specifically to how the Principles and Framework provided a baseline

blueprint they used when designing their own institution’s strategy for micro-credentials. For example, one pilot lead said, *“The Principles and Framework provide a guideline on what we will use as an institution going forward. Having the eCampusOntario Principles and Framework ensured that we were developing a focused micro-credential with longevity.”*

At the same time, eCampusOntario’s mixed approach of avoiding a rigid definition at the outset and allowing space for experimentation also empowered pilot teams to develop micro-credentials that worked for them and their context. Out of that approach emerged one of the most interesting findings: while the PSIs greatly valued the flexibility provided by the Principles and Framework, they largely come to the same conclusions regarding micro-credentials—that they should be skills/competency targeted, relevant to employers, and awarded on the basis of an assessment. Significantly, these conclusions largely align with the emerging global and Canadian views described in Chapter 1, suggesting that the micro-credential community in Ontario is on the right track to be aligned with transnational trends in micro-credential development.

## Filling the Awareness Gap

One of the biggest obstacles to the adoption of micro-credential is a lack of awareness, a point often made in the existing literature.<sup>72</sup> Lack of awareness was also apparent in the focus groups conducted for this project, where many employer partners stated they did not know what a micro-credential was before engaging with their pilot initiative. From PSI pilot leads, we heard more frequently that they were familiar with the term *micro-credential* but were confused about its definition and how the associated governance and delivery challenges could be overcome. This highlights the need for not only greater clarity of definition or concept,

but also greater understanding of the day-to-day practical logistics of micro-credentials.

In the focus groups, we also heard that there needs to be more awareness and communication for micro-credentials targeted to both employers and learners. Those who are familiar with micro-credentials tend to buy into their promise. And those who learn about them want to learn more. But there is still a large number of people who are not being reached by current promotion and dissemination efforts. For adoption to increase, the number of people who fall into this last category needs to be reduced. Future research that examines micro-credential awareness among learners (which this study did not include), and the ways in which this awareness can be spread more effectively, could be particularly useful.

## Improving Assessments in the Micro-credential Ecosystem

One of the findings that emerged most clearly from the primary research conducted for this project was that reliable assessment is central to the effective deployment of micro-credentials. One pilot lead captured this point well:

*Graduates of these micro-credentials have these competencies and employers want to be reassured, “Okay. If I hire this person...they’ll have the skill and be able to apply it in the workplace.” So I do think that authentic assessment is really key.*

Ultimately, for a robust and healthy micro-credential ecosystem to expand, there must be general acceptance that someone who holds a micro-credential can reliably be understood to possess the skill or competency claimed. The importance of this point is better understood when framed in terms of the three key concepts

used by eCampusOntario to understand the functioning of a micro-credential ecosystem: trust, value, and exchange. Without assessment, the *value* of a micro-credential is undermined by a lack of *trust* in the ability of any learner to demonstrate the skill or competency targeted by the micro-credential offering. As a result, the power of *exchange* in the market is depleted.

Pilot leads spoke often of the importance of having clarity on the roles and responsibilities of each partner for enabling greater adoption of micro-credentials. As one pilot participant put it, “Employers know what they want, but they don’t necessarily know how to articulate it. We’ve got to have some sort of common ground to work from.” Another pilot lead said, “To employers, the idea of authentic assessment sounds really nice. But they don’t know what it means or what it is.”

Each category of stakeholder has something to contribute to the development of relevant assessment. For example, employers are often best placed to play the role of subject-matter experts and to bring the practical hands-on perspective needed to ensure that the skills and competencies being assessed are actually useful in the workplace. PSIs are likely best placed to develop and design the form of the assessment. Irrespective of who is designing and conducting the assessment, however, it is clear that additional work is needed to better understand learners’, educators’, and employers’ perspectives on assessment in the context of micro-credentials and how to execute it most effectively.

## Meeting Learner Needs by Meeting Employer Needs

In the focus groups, pilot leads talked about the challenges of working with partners and how sometimes there is pushback

against employers playing a significant role in identifying the skills and competencies that academic institutions end up teaching. Interestingly, however, they also pointed out that when conversations are redirected to focus on learners and their needs, there is a shift in perspective. One pilot team put it this way:

*We can [micro-credential] any skill, but does it help an employer? Is an employer looking for this skill? Because it doesn’t help anyone to give students another hoop to jump through unless it benefits them. So, we are focusing on finding an employer who will look at that skill, and say if I see that students have this, then I’m more likely to hire them from the stack of 50 resumes.*

The implication of this is that to meet learner needs, micro-credentials also need to meet employer needs—not a surprising finding when considered in the context of an ecosystem. But it’s not necessarily obvious if considered outside this context. Thus, as discussed earlier, mechanisms that enable employers to validate the skill or competency as relevant are critical. As explained by a pilot lead:

*The success of a micro-credential for any person is not measured by a transcript with an A. It is measured by demonstration and ongoing building on that original micro-credential. Frankly, how employable are they in the marketplace where they are seeking a job? I am saying that our responsibility to the student does not end at the transcript. As educators, we have to be part of promoting our learners and their micro-credentials, after they leave us, by endowing their micro-credentials with characteristics that continue to promote the earner long after they have earned it.*

The question then becomes, How do you define a skill or a competency? Thinking about programming that is focused on skills and

competencies, as opposed to disciplinary knowledge, often requires a shift in thinking from the traditional approaches more familiar to many working in PSIs.

It's worth highlighting the importance of competency frameworks in the context of shifting to a focus on skills and competencies, especially because of the challenges associated with finding frameworks that are appropriate. One pilot lead stated during a focus group: *"We were looking for, really searching very hard to find, some kind of common competency framework to use for everything. And we just couldn't."*

Competency frameworks are conceptual tools used to identify, categorize, and organize skills and competencies. They are especially valuable to employers as they can use them as tools to identify their skill needs and the candidates who could fill in these needs.<sup>73</sup> For example, Employment and Social Development Canada has developed the The Skills for Success framework, which identifies essential skills "needed to participate and thrive in learning, work and life."<sup>74</sup> There are nine essential skills: adaptability, collaboration, communication, creativity and innovation, digital, numeracy, problem solving, reading, and writing (see Table 4).<sup>75</sup>

**TABLE 4**  
The Skills for Success Framework

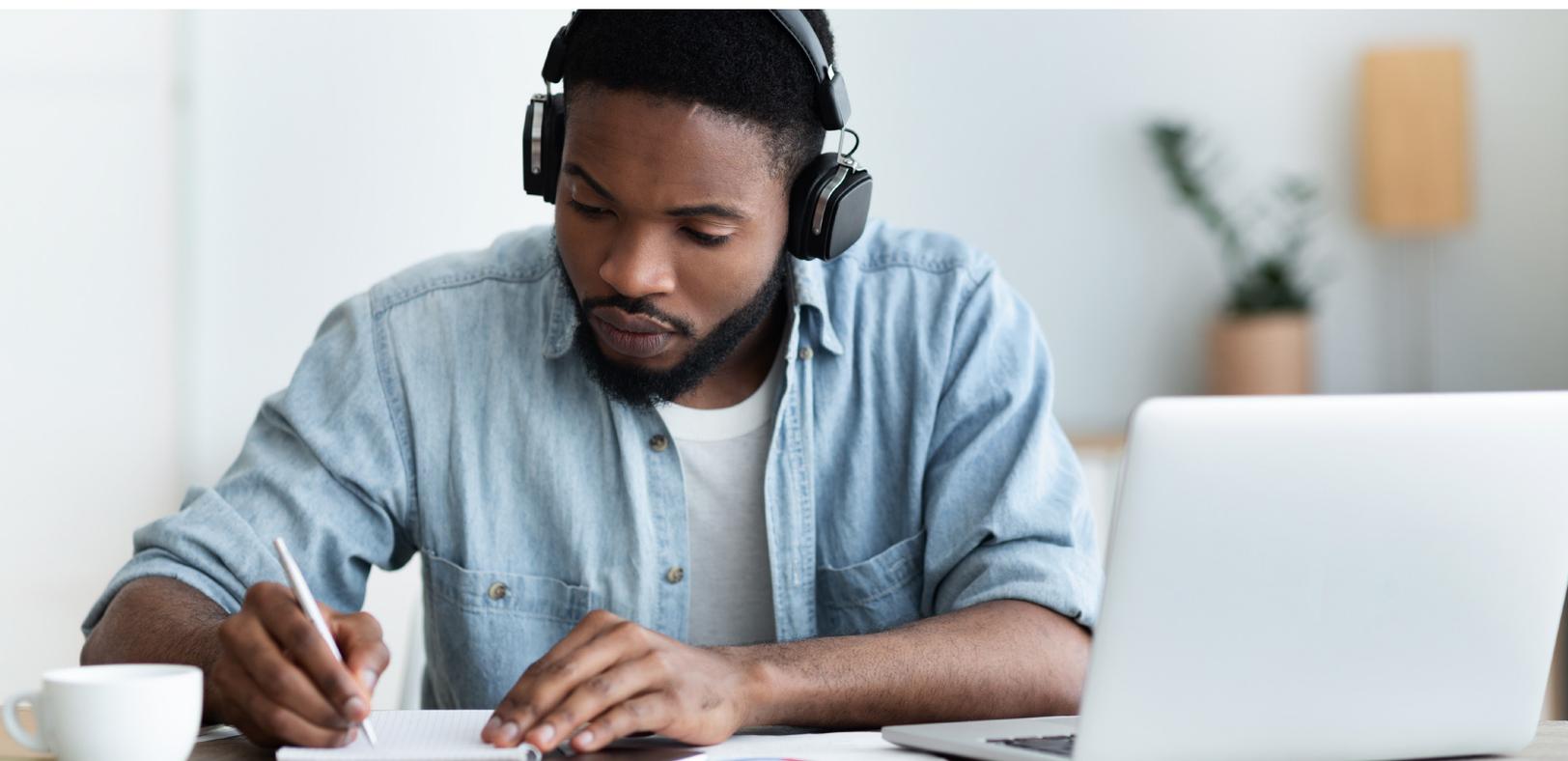
Reading	Your ability to find, understand, and use information presented through words, symbols, and images. For example, at work we use this skill to read memos, emails, reports, instructions, and safety manuals; as well as to locate information on forms and drawings.
Writing	Your ability to share information using written words, symbols, and images. For example, at work we use this skill to fill out forms and write emails, instructions, and reports.
Numeracy	Your ability to find, understand, use, and report mathematical information presented through words, numbers, symbols, and graphics. For example, at work we use this skill to perform calculations, order and sort numbers, make estimations, and analyze and model data.
Digital	Your ability to use digital technology and tools to find, manage, apply, create and share information and content. For example, at work we use this skill to take measurements, create spreadsheets, safely use social media and make online purchases using digital devices such as smartphones, sensors, and computers.
Problem Solving	Your ability to identify, analyze, propose solutions, and make decisions to address issues; monitor success; and learn from the experience. For example at work we use this skill to make hiring decisions, select courses of action and troubleshoot technical failures.
Communication	Your ability to receive, understand, consider, and share information and ideas through speaking, listening, and interacting with others. For example, at work we use this skill to discuss ideas, listen to instructions, and serve customers in a socially appropriate manner.

Collaboration	Your ability to contribute and support others to achieve a common goal. For example, at work we use this skill to provide meaningful support to team members while completing a project.
Adaptability	Your ability to achieve or adjust goals and behaviours when expected or unexpected change occurs, by planning, staying focused, persisting, and overcoming setbacks. For example, at work we use this skill to change our work plans to meet new deadlines, to learn how to work with new tools, and to improve our skills through feedback.
Creativity & Innovation	Your ability to imagine, develop, express, encourage, and apply ideas in ways that are novel, unexpected, or challenge existing methods and norms. For example, at work we use this skill to discover better ways to complete tasks, to develop new products, and to deliver services in a new way.

Source: Government of Canada. (2021). [Learn about the SKills](#).

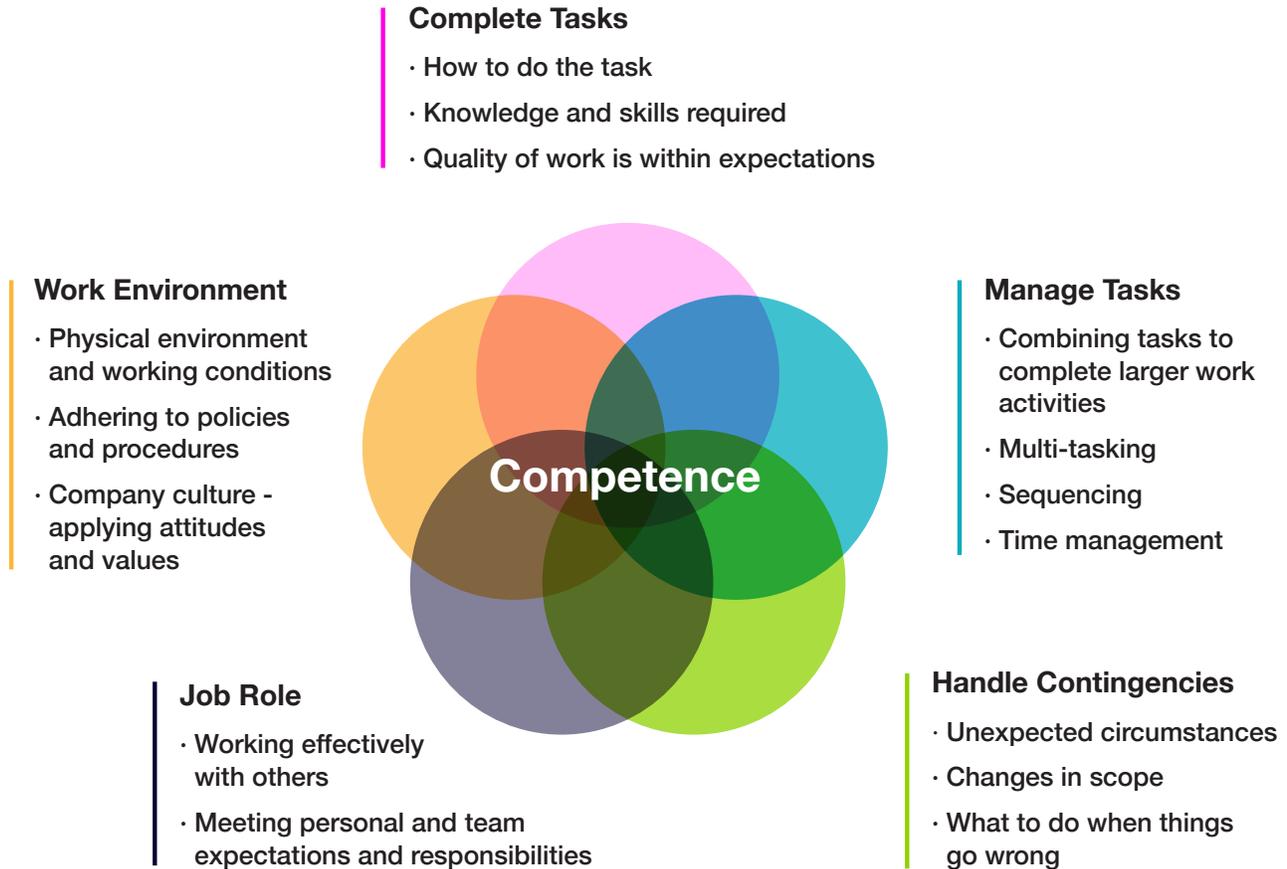
Coherent and validated competency frameworks are especially important for the development of micro-credentials because of how micro-credentials are designed to target and credential discrete skills and competencies. In addition to the findings from the survey and the focus groups, the literature review conducted for this project also found that micro-credential programs are often defined by a focus on competencies. While it is beyond the scope of this report to dive deeply

into this topic, it may be the next big area of development for micro-credentials in Ontario, which is why eCampusOntario is involved in competency frameworks through the [Open Competency Toolkit](#). This toolkit is designed to provide context, templates, and examples of open competency frameworks that can be used in establishing a common language and understanding of competencies across educational and employer contexts.



## FIGURE 9

### What do we mean by competency?



Source: Green, D., & Levy, C. (2021). eCampusOntario Open Competency Toolkit. eCampusOntario.

Finally, there is not yet a substantial body of research that captures feedback from learners about micro-credential programs they have completed. This may be because there are still not many learners who have completed a micro-credential program, or have had enough time pass between obtaining a micro-credential and working in order to be able to answer questions related to retention, job seeking, and more. More research on learner perspectives is required.

## Collaborating in the Micro-credential Ecosystem

As discussed earlier in this report, eCampusOntario has built on the work of others to prioritize the concepts of *trust*, *value*, and *exchange* as critical components of a healthy micro-credential ecosystem. The goal of eCampusOntario's pilot program was to connect employers and educators in collaborative development of micro-credentials to equip learners with relevant skills to take to the job market.

Each pilot project team worked with their employer partners from the early stages of the project to identify the skill or competency and ensure the relevance of the micro-credentials they were developing. While employers determined relevance in most cases, this was not always possible. One pilot participant raised an issue with capacity as a smaller institution:

*We don't necessarily have industry knocking down our door in the same capacity as larger colleges or universities. So if that is the driving point, we would fall behind in this game*

*pretty quickly. We have to see it from both ways. Industry comes to us with something, and of course we want to be responsive and do so very quickly, but we also want to be prepared to have offerings for industry that are supported by research and data. But for us, I'd say it's a bit of a challenge for that reason.*

This is just one of the considerations when scaling micro-credentials. Pathways between employment and education need to be built, which takes time and effort on the part of both parties. But while smaller institutions have capacity needs, it is also important to note that some of the strongest partnerships develop at local and community levels precisely because these smaller institutions have incentives to pay closer attention to the needs of their local partners. Regardless, this study has identified the needs of smaller players in the ecosystem as an area that could benefit from a central connection point capable of gathering insights from those who are interested in developing micro-credentials and facilitating partnerships between employers and PSIs.



# Recommendations and Opportunities

In the rush to define micro-credentials and add parameters to their development and delivery, we run the risk of recreating a system that was designed for traditional credentials. There is an overwhelming desire to define micro-credentials within the model of traditional modes of higher education credentialing, but the fundamental point is that *micro-credentials are designed to be different*. It is critical to remember the promise of micro-credentials: short duration, highly focused, and workplace relevant learning that provides access to higher education with more flexibility and fewer barriers. An increased emphasis on research, experimentation, pilots, and conversation will not only provide more data to make informed decisions, but will support collective learning and growth as we move closer to consensus.

Participants in this research project offered numerous valuable insights. By building on these insights and analysis, we present eight opportunities and recommendations to further improve stakeholder experience in the micro-credential ecosystem.

**1. Create robust employer and educator networks to facilitate collaboration and connection across sectors.** Research participants acknowledged the value of collaboration between PSIs, employers,

community partners, and others. Cross-sector collaboration is necessary to realize trust, value, and exchange in the micro-credential ecosystem. Building stronger networks to link employers and educators will help support and institutionalize the ongoing, deep, and reliable collaboration needed to build relevant micro-credential programs over the long term.

- 2. Conduct further research into the assessment methods that work best in the context of micro-credentialing.** The importance of “authentic” assessment was highlighted at various points in this research. Given the novelty of micro-credentials, and their promise of credentialing a learner’s skills and competencies with much greater specificity, it is not obvious that traditional methods and instruments of assessment are optimal in this new, often primarily online, context. Additional research into the best approaches to assessment will be critical to ensuring that this key promise of micro-credentials, namely the ability to more reliably recognize the possession of a specific skill or competency, is fulfilled.
- 3. Conduct a comprehensive mapping of skills in demand in the present and future.** Mapping skills could bridge the gap between

PSIs and employers, providing a foundation of what should be prioritized and targeted through micro-credential programming. Participants asserted that micro-credentials must be relevant and respond to social and economic contexts. Mapping in-demand skills will ensure that micro-credentials are relevant and respond to current ecosystem needs. Such a mapping exercise would also benefit from a more developed understanding of competency frameworks in the context of micro-credentials.

**4. Amend the eCampusOntario Principles and Framework to account for the insights gathered in this report.** Research participants expressed several suggestions for improving the Principles and Framework. For example, some stakeholders expressed that transcriptability and extensibility are the least important elements of the Framework from their perspectives. eCampusOntario should consider modifying the Framework on the basis of this feedback as well as other findings reached through the analysis contained in this report and other research identified as needed.

**5. Support experimental and innovative micro-credential development, delivery, and pedagogy.** Micro-credentials are still a relatively new concept and can benefit from innovative ideas. Participants identified several areas of micro-credential delivery that could be improved; for example, the importance of accurate evaluation of learner skills and knowledge for authentic assessment. Participants also noted that quality assurance processes hold up micro-credential development and represent barriers to addressing urgent learner needs. Micro-credential delivery could benefit from the development of innovative approaches to overcoming or addressing these obstacles and challenges that meet urgent learner needs while maintaining high quality.

**6. Drive awareness of micro-credential potential and opportunity across Canada among the stakeholder groups identified in this report: educators, employers, and learners.** As has been discussed in this report, micro-credentials have enormous potential to benefit educators, employers, and workers, and meet current and future skills gaps. However, the further development and growth of the micro-credential ecosystem requires greater awareness and buy-in from all stakeholder groups.

**7. Conduct additional research on the potential of micro-credentials to better reach equity-seeking groups.** There is a large body of research that shows that diverse groups face barriers to equity in the labour market.<sup>76</sup> Because of the increased access to higher education that they offer through their greater flexibility, specific skills/competency focus, and lower costs, micro-credentials represent a potentially important tools for helping to reduce this existing inequity. This was not a topic that received significant attention in this research project, and thus new research focused on the opportunities offered by micro-credentials in this area could help illuminate any steps that might need to be taken to make these important opportunities more effective and accessible.

**8. Invest in research to capture feedback from learners and/or employers.** One of the limitations of this study was its limited engagement with employers and community partners and the lack of direct engagement with learners. Further research aimed at better capturing the experiences of these groups should help to improve outcomes in the micro-credential ecosystem for all stakeholders.

# Appendix A: Survey Questions

1. What institution are you affiliated with?

2. What terminology do you use to refer to micro-credentialing activity in your institution?

- > Badge
- > Micro-course
- > Micro-certificate
- > Micro-credential
- > Prefer not to answer
- > Other (please specify)

3. Please rate your agreement with the following statement: “The eCampusOntario Principles and Framework was a useful blueprint when I was developing my micro-credential.”

- > Strongly disagree
- > Disagree
- > Neutral
- > Agree
- > Strongly agree

Please explain your answer:

4. Based on your experience developing your micro-credential pilot, which three elements of the Principles and Framework were most important in your work?

- > Issuing Body
- > Summative Assessment
- > Competency/Skills Targeted
- > Transcriptable
- > Outcomes
- > Partner Endorsement
- > Relevance
- > Verifiability
- > Ownership
- > Extensibility
- > Prefer not to answer

Is there anything you'd like us to know about these elements of the Principles and Framework?

5. Based on your experience developing your micro-credential pilot, which three elements of the Principles and Framework were least important in your work?

- > Issuing Body
- > Summative Assessment
- > Competency/Skills Targeted
- > Transcriptable
- > Outcomes
- > Partner Endorsement
- > Relevance
- > Verifiability
- > Ownership
- > Extensibility
- > Prefer not to answer

Is there anything you'd like us to know about these elements of the Principles and Framework?

6. Based on your experience developing a micro-credential using the Principles and Framework, would you add any principles or elements to the framework?

- > Yes
- > No

If yes, what would you add to the Principles and Framework?

7. What support/resources were most helpful to you in the development of your micro-credential?  
Select all that apply

- > Educational design support (e.g., instructional developer)
- > Technology/IT support
- > Course release
- > Support to identify an industry partner
- > Prefer not to answer
- > Other (please specify)

8. Who do you think a micro-credential is most useful for? Please rank the following options, with 1 being most useful.

- > People preparing to work in a new sector or job
- > People looking to improve skills and demonstrate competencies
- > People accessing learning opportunities while working full time
- > People who are retraining or re-skilling
- > People trying to demonstrate workplace-ready skills that complement their degree or diploma
- > Other

9. If relevant, describe the “Other” option you identified in the ranking question above:

10. Please provide an e-mail contact for your industry partner who collaborated with you on your micro-credential pilot. This information will be used to invite them to contribute to this project through an industry focus group.

11. Additional comments you would like to share with us:

# Appendix B: Focus Group Questions for Micro-credential Pilot Leads

**Q1.** What defines a “micro-credential”? What elements, characteristics, or outcomes might you expect from one?

**Q2.** In the survey that you completed, we asked this question: “Do you agree with this statement: ‘The eCampusOntario Principles and Framework was a useful blueprint when I was developing my micro-credential.’ Any initial thoughts on this question?”

You might consider: Why do you think someone might strongly disagree with the statement?  
Why do you think someone might strongly agree with the statement?

**Q3.** Which elements for the Principles and Framework are easier to implement and which are more difficult? For the ones that were more difficult, can you describe why?

**Q4.** Would you change anything about the framework? If so, what would you change?

**Q5.** Is there anything else you would like us to know about your experience putting the framework into action?

**Q6.** Can you share any impressions you have of what learners thought about the micro-credential?

You might consider: Have you received feedback from learners? If so, what was it? How did you measure learner outcomes in your micro-credential, if you did measure or assess learners?

# Appendix C: Focus Group Questions for Employer Partners

**Q1.** Tell us generally about your experience developing a micro-credential? How did it go? Anything to share?

**Q2.** What defines a “micro-credential” in your view? What elements, characteristics, or outcomes might you expect from developing one?

**Q3.** Why did you decide to design a micro-credential with a post-secondary institution (PSI)? What did you hope to achieve? Why was that partnership important to you?

[Zoom poll with this question] Our primary motivation for exploring micro-credentials is (select all that apply):

- > Recruiting new talent or retain existing talent
- > Up-skilling existing employees and/or professional development
- > Addressing a skills gap in potential hires
- > Creating programming for a new skill (e.g., training on a new technology or emerging trend)
- > Other (please tell us about it!)

**Q4.** What do you need to do this work?

**Q5.** Do you think micro-credentials are valuable from your perspective? Why or why not?

**Q6.** Do you see value in using micro-credentials in hiring decisions? Why or why not?

**Q7.** How do you feel about micro-credentials developed by other employers or an umbrella organization in your field?

**Q8.** Are you aware of any employee impressions or feedback about the micro-credential? If so, what was it?

**Q9.** As the province scales micro-credential development, what is needed from your perspective?

- > What worked well for you in terms of partnership on micro-credential development?
- > What were the challenges along the way?

# Endnotes

1. Throughout this report we purposefully use the language of *educator*, *employer*, and *learner*, to describe the key stakeholders in this conversation. These terms are carefully chosen with an eye to inclusivity. *Learner* is intentionally chosen over *student* to indicate that micro-credential programs are for individuals at any stage of life, not just for current or recent graduates.
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