



**Future
Skills
Centre** Centre des
**Compétences
futures**

APRIL 2023

Employer and Employee Perceptions of Micro-Credentials





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 Toronto Metropolitan University, Blueprint ADE, and The Conference Board of Canada, and is funded by the Government of Canada's Future Skills Program.



A LEADING POLYTECHNIC
COMMITTED TO YOUR SUCCESS



NAIT's hands-on, technology-based education and applied research are essential to the productivity and prosperity of Alberta. Graduates have the knowledge and skills employers want. They leave NAIT confident, prepared and in demand.



Technology is who we are — it's what we do. Officially known as the Southern Alberta Institute of Technology (SAIT), we're a community of thinkers, creators and champions leading change and reimagining the workforce of tomorrow.



Every year, Bow Valley College helps more than 15,000 learners reach their goals at its downtown Calgary campus, at more than 20 locations throughout southern Alberta, and online. That's 300,000 success stories since 1965.



Authors

DAVID HARVEY, EdD

CONSULTANT, NAIT

David Harvey has over 25 years experience as a higher education leader in the areas of workforce development and international education. He is currently a principal with David Harvey & Associates and is engaged in the development and evaluation of micro-credential and continuing education strategies for various higher education institutions. His scholarly activities are focused on innovation in workforce development initiatives and the use and governance of educational technology in higher education. Most recently, he has led the development, testing, evaluation and scaling of work integrated learning approaches for small and medium-sized enterprises in Bangladesh.



RUSS WILDE, EdD

CONSULTANT, NAIT

Russ Wilde is an experienced post-secondary instructor, researcher, and leader who has followed a scholar-practitioner approach throughout his career in higher education. For the past 25 years, he has served in multiple teaching, research, administrative, and management positions within higher education institutions, providing expertise and oversight for online learning and educational technology, curriculum development, and applied research. Dr. Wilde's scholarly activity has been focused on higher education leadership practice, online and alternative program and service delivery, and application of qualitative methods in educational research. Most recently, Wilde has been engaged in pilots of hybrid flexible delivery program models designed to provide students with multiple options for engagement through asynchronous and synchronous online activity combined with face-to-face instruction and with the development of effective micro-credential programs to address reskilling and upskilling initiatives.



PARTHA ROY

MARKET RESEARCH MANAGER, NAIT

Partha has over 15 years of market research and consumer insights experience. A well-versed world traveler, Partha has conducted market research in locations that include Canada, Singapore, South Korea, China, South East Asia and Europe. Partha has worked in senior market research roles with numerous large firms, including Kantar, Ipsos and Ericsson Global. Throughout his robust career, Partha has worked with an exciting and diverse group of clients, providing insight and strategy across projects bridging almost every industry and continent. Most recently, within NAIT, he is working closely to evaluate and develop new training programs for upskilling and reskilling, using labour market insights and engaging with Industry customers and Associations.

Canada 

Publication Date:

April 2023

Employer and Employee Perceptions of Micro-credentials is funded by the Government of Canada's Future Skills Program.

The opinions and interpretations in this publication are those of the author and do not necessarily reflect those of the Government of Canada.

Table of Contents

| | |
|----|------------------------------|
| 1 | Executive Summary |
| 3 | Acronyms |
| 4 | 1.0 Introduction |
| 6 | 2.0 Literature Review |
| 10 | 3.0 Methodology |
| 13 | 4.0 Findings |
| 46 | 5.0 Conclusions |
| 51 | References |
| 54 | Appendix A: Survey |

Executive Summary

The study uses grounded theory methods to develop and verify a conceptual framework for how Alberta employers and ‘earners’ value micro-credentials—particularly in relation to traditional credentials—when considering their hiring, promotion or education and training choices. The Northern Alberta Institute of Technology (NAIT) leads the enquiry in collaboration with Bow Valley College (BVC) and the Southern Alberta Institute of Technology (SAIT). A survey of employers (n=222) and earners (n=287) is conducted with a subsample of employers (n=34) and earners (n=23) participating in follow up interviews. Employer and earner research participants are generally able to consistently identify three defining characteristics of micro-credentials: i) short duration, ii) workplace authenticity and iii) a digital icon award. Nevertheless, both employer and earner research participants reveal relatively low levels of awareness of micro-credentials, particularly when compared with traditional credentials. Completion of trusted traditional credentials and/or related work experience remain the dominant criteria for selecting new or promoting existing employees. However, in circumstances where demand for specific skills or areas of knowledge exceed supply of those with trusted traditional credentials or relevant work experience, employers will consider candidates with micro-credentials. The earner research participants that record the most successful labour market results meet one or more of the following conditions: i) have significant related academic or work experience but may not be familiar to local employers or in another sector or occupation; ii) their micro-credential issued by a trusted organization and preferably bolstered by regulator, professional body or vendor recognition, and/or iii) their micro-credential represents an interest or affinity for innovation in an emerging occupation or sector. Based upon the conceptual framework developed during this study, the following are recommended focus areas for micro-credential future development:

1. Introductory to advanced micro-credentials in emerging occupations where demand vastly exceeds supply of traditional credentials. These may serve as initial building blocks for traditional credential offerings as emerging sectors mature.
2. Micro-credentials at a mid to advanced level targeting potential earners that are seeking to validate an unfamiliar (e.g., international) academic and/or work history in occupations where demand exceeds supply of traditional credentials.



3. Micro-credentials at a mid to advanced level targeting potential earners that are seeking to validate their knowledge and skills after a significant absence from an occupation where demand exceeds supply of traditional credentials.
4. Micro-credentials at a mid to advanced level targeting potential earners that are seeking to demonstrate the transferability of current knowledge and skills to a related occupation or sector where demand exceeds supply of traditional credentials.
5. Micro-credentials at a mid to advanced level that are recognized by either regulatory bodies as a requirement for entry to an occupation or by professional bodies as meeting ongoing Continuing Professional Development (CPD) requirements.



The study's conceptual framework also identifies significant opportunities to build awareness of micro-credentials among both employers and potential earners in two specific ways. First, more focused value proposition marketing to employers and potential earners will build awareness and clearly differentiate micro-credentials from traditional credentials in the education and skills training marketplace. Micro-credentials should not be considered a replacement for traditional credentials but, as noted above, a tool to leverage earners' interest, aptitude, academic and/or work history in occupations where current demand exceeds supply of trusted traditional credentials. Second, increasing the awareness of metadata embedded in digital icons has great potential to enhance adoption rates of micro-credentials. Metadata relating to how and when earners are evaluated addresses many of the primary reservations of employers when considering candidates with micro-credentials.

Acronyms

AI Artificial Intelligence

BVC Bow Valley College

CASL Canada Anti-Spam Legislation

CPD Continuing Professional Development

CRM Client Relationship Management

FOIP Freedom Of Information and Privacy Protection

HR Human Resources

NAIT Northern Alberta Institute of Technology

SAIT Southern Alberta Institute of Technology

SIS Student Information System

U.S. United States

1.0 Introduction

Micro-credentials are a relatively recent training and certification option within the higher and continuing education landscape. Typically, micro-credentials are awarded as digital icons (or badges) that serve to affirm specific claims of competency, often related to experiences, skills or knowledge required in the workplace. Like traditional credentials, micro-credentials are issued by trustworthy bodies and, since their inception in 2012, many leaders and policy makers in higher education underscore the potential of micro-credentials to target specific needs for workplace skill instruction, evaluation and certification. For education institutions, micro-credentials are an opportunity to design, deliver and certify a new type of learning product to better serve many types of learners. Their specificity and relatively small size allow learners to undertake more targeted and personalized learning programs through micro-credentials selected a la carte. For example, learners can select only the needed learning outcomes, avoiding redundant learning offerings embedded in longer traditional programs. Policymakers and educators in many jurisdictions are strong proponents of micro-credentials as cost-effective solutions for learners with experience but lacking traditional or other trusted certifications or learners that are seeking to ‘fast track’ their entry or re-entry to the labour market by learning only the competencies required in their specific desired career path. In Alberta, many in the labour market are seeking to ‘pivot’ from relatively abating industries (particularly oil and gas). Micro-credentials are promoted by governments and education institutions as a pathway to demonstrate the relevance of existing skills within newly emerging and rapidly growing sectors. However, it remains unclear if or how micro-credentials are accepted by employers and ‘earners’ (people with at least one micro-credential) and how practices may vary by sector context.

Many organizations now offer micro-credentials and there is an opportunity to evaluate how they are understood and used in the labour market and if there is evidence of fulfilling their initial promises. Using qualitative data and grounded theory methodology, the study establishes a conceptual framework to describe and explain how Alberta employers and 'earners', define micro-credentials and judge their value. Studies to date predominantly consider micro-credentials from educators' perspectives. There are very few studies on employers' and even fewer on earners' perceptions of micro-credentials. Very little is known from empirical studies regarding if or how micro-credentials are factored in employers' hiring and promoting decisions. There are studies where researchers postulate the value proposition of micro-credentials for earners, but empirical studies are lacking that record and analyze earners' motivations leading to choosing a micro-credential and their subsequent experiences, especially within growing areas of the Alberta labour market such as technology, renewable energy and project management.



Through the defined conceptual framework, the study seeks answers to the following research questions:

1. Do employers and employer organizations trust that micro-credentials are a more reliable indicator of a skill and a predictor of success than traditional credentials or other assessment methods such as interviews? Under what conditions and why?
2. Do employers place any more or less value on micro-credentials as a reflection of success in hiring or promoting decisions compared to traditional credentials?
3. Do employers consider micro-credentials as a potential replacement of traditional credentials in predicting workplace success?
4. Do employers use micro-credentials for employee assessment? How and why?
5. Do employers consider micro-credentials a way to promote inclusivity for those without traditional credentials?
6. Do different types of micro-credential holders and potential holders view micro-credentials as more or less value in the employment market for demonstrating success? If so, how and why?
7. Do micro-credential holders and potential holders consider micro-credentials as a replacement or augmentation of traditional credentials to demonstrate success?
8. Do micro-credential holders and potential holders value micro-credentials awarded by employers?

The study's conceptual framework will help guide the future investment and development of micro-credentials and ensure programming addresses the demonstrated needs and expectations of earners and employers, particularly in growth sectors of the Alberta economy.



2.0 Literature Review

2.1 Defining Micro-Credentials

In response to ever changing labour market demands, micro-credentials were initially proposed in 2012 by the Mozilla Foundation as an online authenticated claim of specific skills or experiences that are valued by employers (Clements et al., 2020; Hall-Ellis, 2016; Willis III et al., 2016; Danny Young et al., 2019). Displayed through digital icons on social media platforms such as LinkedIn and Twitter, micro-credentials now often contain online ‘metadata’ such as when, how and by whom learner assessments are conducted - serving to reinforce micro-credential credibility and reliability with the employers (Carey & Stefaniak, 2018; Harvey, 2018; Lockley et al., 2016). However, as micro-credentials use continues to grow and mature, the original understanding now often is expanded to encompass much broader applications. Now known by a multitude of monikers such as ‘nanodegrees’, ‘digital badges’ and ‘open badges,’ these online icons can reflect a general understanding or experience that may or may not have relevance in the workplace (Lockley et al., 2016; Maina et al., 2022; Randall et al., 2013; Stern, 2017). As micro-credentials become increasingly common and defined even more broadly, many stakeholders in the labour market are seeking a working consensus on how micro-credentials should be commonly understood and implemented in academia and the labour market (Brown et al., 2021; Oliver, 2019, 2022).

2.2 Educator Perspectives

A study from eCampus Ontario (Gooch et al., 2022) demonstrates a growing consensus among Canadian educators regarding the defining characteristics of micro-credentials being that they i) reflect a specific or discrete skill or competency, ii) require the learner to be assessed in a manner that is authentic to the workplace, iii) are relevant to the labour market, and iv) are connected to short courses. In this context, competency is defined as the “combined utilization of personal abilities and attributes, skills and knowledge to effectively and reliably perform a job, role, function, task or duty” (Statistics Canada & ESDC Canada, 2019). While the e-Campus Ontario study confirms how micro-credentials are being conceptualized among the educators (n=24) and learners (n=7) interviewed, it recommends further research on micro-credentials to better understand stakeholder experiences with micro-credentials and potential opportunities to improve the understanding and efficacy of such offerings (Gooch et al., 2022). College and Institutes Canada (2021) finds in a survey (n=54) conducted among its members at post-secondary institutions that there is a significant perceived lack of awareness of micro-credentials among employers in many sectors. Similarly, the BC Council on Admission & Transfer also reports that there is not yet enough available data on employer perspectives to make conclusions on the impact of micro-credentials in the labour market (Dukas, 2020)





2.3 Employer and Learner Perspectives

Particularly from the United States (U.S.), studies on employer perspectives towards micro-credentials are emerging recently. In particular, the SHRM Foundation (2021) surveyed (n=1,525) its member employers in the U.S. about “alternative credentials,” including micro-credentials. Employers agree that recognizing alternative credentials like micro-credentials creates significantly greater access to more diverse talent pools. However, many Human Resource (HR) professionals also note that their applicant screening processes only recognize traditional credentials, thus strictly limiting employment consideration for micro-credential earners (SHRM Foundation, 2021). Additionally, starkly different perspectives on micro-credentials among executives, supervisors and HR professionals within the same organizations are sometimes observed. For example, when asked if it was difficult to understand what skills were being measured within an alternative credential, a majority (54 percent) of HR professionals agreed compared to a significantly smaller number of supervisor (27 percent) and executive (22 percent) (SHRM Foundation, 2021). In Canada, a recent survey of employers (n=201) and prospective students (n=2,000), an ‘awareness gap’ is identified among stakeholders with appreciably varied understandings of what micro-credentials are and their purposes (Pichette et al., 2021; The Strategic Counsel & Associates, 2022). Due to the diverse views, a common definition of micro-credentials emerges only broadly 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” (Pichette et al., 2021). However, the survey demonstrates that the micro-credential elements of most value to employers include: i) specific job relevance, ii) demonstration of a specific competency and iii) trusted accreditation (Pichette et al., 2021). For potential students, the most important considerations relating to micro-credentials are: i) affordability, ii) employer recognition and iii) flexibility (Pichette et al., 2021). The study finds that micro-credentials’ most significant value is understood not as a replacement but as a complement to traditional credentials. Micro-credentials are primarily recognized by employers and prospective students as a way to quickly upskill from a foundation of knowledge and transferable competency (Pichette et al., 2021; Pichette & Watkins, 2018). Furthermore, for hiring and promotion purposes, employers are beginning to demand evidence of competency in each job requirement. As demonstrated in a recent Coursera survey, micro-credentials are gaining more and more credibility as an evaluative tool over standard interview response process (Berry, 2017; Shireman, 2022).

2.4 Micro-Credentials Increase Accessibility

Educators expect that micro-credentials significantly improve access to the labour market for many that are experiencing barriers to traditional credentials which are well known to potential employers (Colleges and Institutes Canada, 2021; Gooch et al., 2022; Pichette et al., 2021; Usher, 2019). Given their generally shorter duration and lower costs, micro-credentials are better able to accommodate learners with financial impediments

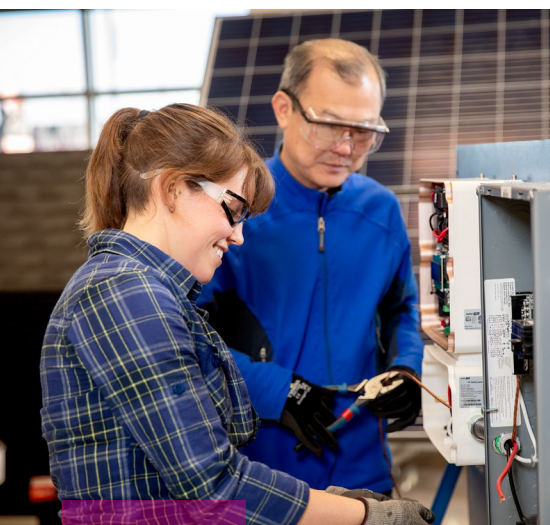
or social commitments that make lengthier traditional academic programs impracticable (Lockley et al., 2016; Oliver, 2022). Similarly, micro-credentials are often defined by educators as being ‘competency-based’ (Colleges and Institutes Canada, 2021; Gooch et al., 2022; Oliver, 2019, 2022). A competency-based micro-credential is awarded not based on the traditional completion and assessment of assigned ‘credit-hours’ or ‘Carnegie Units’ which was first introduced to academic institutions in the early 20th century and is still extensively used today as a time-based method of measuring instruction and program loads (Clements et al., 2020). Instead, competency-based micro-credentials are awarded when the student demonstrates the required competency regardless of the instructional hours completed (Henrich, 2016; Maina et al., 2022; Pichette & Watkins, 2018). Consequently, learners able to demonstrate existing competencies developed outside academic environments can earn competency-based micro-credentials without undertaking additional instruction (Jeantet, 2018).

2.5 Credential Reliability in the Labour Market

As noted by researchers, time and effort is required to build trust in specific credentials (Brown et al., 2021; Usher, 2019). Credentials are a ‘code’ sent from the issuing body and it takes some time, effort and judgement for stakeholders such as employers and students to assess their value. It is noted that over hundreds of years, employers have developed fairly entrenched ideas of the value of traditional credentials but the micro-credential concept has not enjoyed the same history or appreciation among employers or learners (Usher, 2019). Given their relative novelty in academia and the labour market, it is not surprising that most stakeholders often have broad and sometime contradictory understandings of how micro-credentials are defined and used. (Brown et al., 2021; Dukas, 2020; Oliver, 2022). However, unlike traditional credentials, micro-credentials are able to embed selected ‘metadata’ that can easily and reliably convey important information (such as how and when evaluations took place) to a wide variety of end users such as peers, employers, academic institutions, regulators, etc. (Carey & Stefaniak, 2018; Harvey, 2018; Lockley et al., 2016). Compared to traditional credentials, the use of metadata embedded in micro-credentials could serve to enhance understanding and accelerate their adoption rate among employers. As technologies like blockchain become more pervasive, social media platform verification processes and trust in online credentials among users and employers is increasing (Jirgensons & Kapenieks, 2018). Similarly, the social media and ‘shareable’ nature of micro-credential achievement may be a significant motivator for many learners (Abramovich et al., 2013; Santos et al., 2013). Demonstrating competency through a trustworthy and digitally sharable micro-credential builds the learners’ professional credibility with their peers, employers and clients (Carey & Stefaniak, 2018; Lockley et al., 2016). As a result, successful learners are very likely to digitally share their micro-credentials and thereby help build the issuing institution’s brand through recommendations and endorsing to their peers the micro-credential’s value (Young et al., 2019).

2.6 Digital Badges in Staff Training and Development

While less is reported on the potential for micro-credentials in staff training and development, (Copenhaver & Pritchard, 2017) indicate initial success in implementing a system of gamified digital badges to help onboard and upskill new employees in an academic library setting, citing its motivational benefits. Freifeld (2017), indicate that several large corporations such as IBM and Samsung have been able to increase internal training engagement by implementing systems that award digital badges for completion of training and demonstration of specific competencies.



3.0 Methodology

The study employs both surveys and qualitative interviews to collect data from participants. Data analysis is accomplished using grounded theory methods to analyze interview transcripts. Development of the final conceptual framework follows the general methods outlined by Jabareen (2009) along with other aspects of grounded theory analysis to develop a theoretical framework that emerges directly from the gathered data.

3.1 Ethical Considerations

Although the study is considered to pose only minimal risk for participants, the researchers took steps to ensure compliance with ethical research practices to guard against any negative consequences. This includes informed consent to participate in the anonymous initial survey along with self-identification and completion of consent forms for participation in research interviews. Research participants are informed that their consent could be withdrawn prior to the completion of the research project without consequence.

Names, contact information, and information on current employment of interview research participants is collected to complete interviews and related follow-up but remained confidential within the core research team. Upon completion of analysis, all data is deidentified and records allowing identification of participant are destroyed.

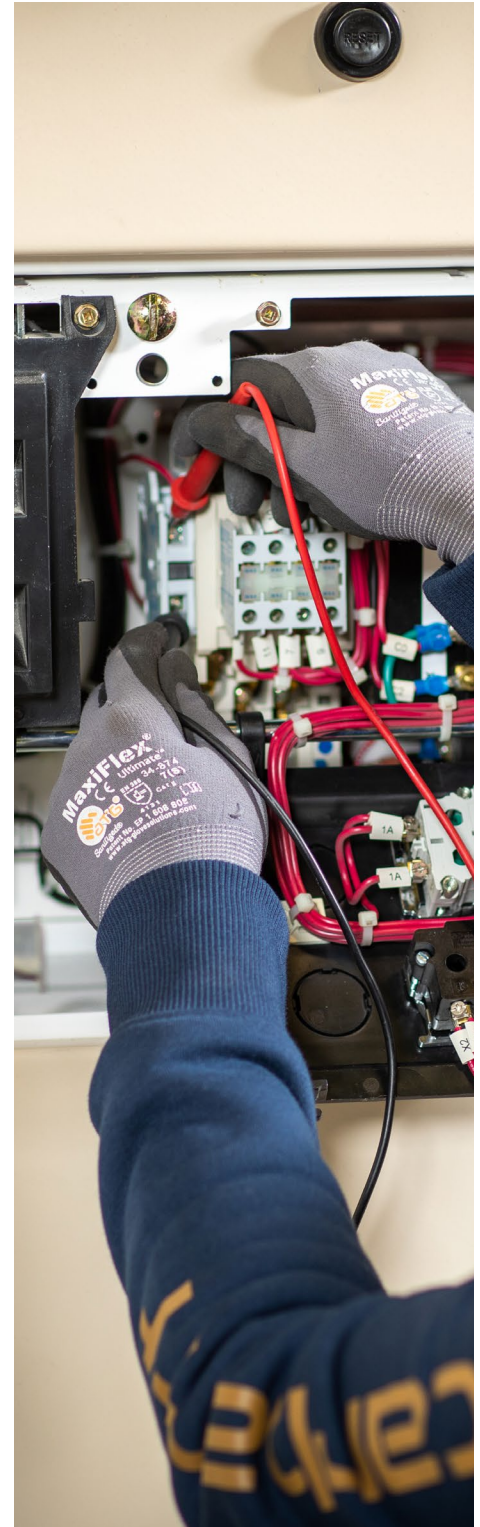
Prior to commencement of research, the researchers obtain formal clearance from the NAIT Research Ethics Board. The partner institutions subsequently obtain ethical clearance through their institutional processes prior to commencement of data collection.

3.2 Data Collection

The study is conducted in two phases. In the first phase, separate online surveys are conducted of both employers and past micro-credential earners to collect responses to items related to understanding of and attitudes regarding micro-credentials. In the second phase, those respondents who self-identified for further participation are interviewed by one of the research team. Survey participants are given an opportunity to self-select to participate in a draw for a gift card. Interview participants are awarded a gift card in appreciation for their time.

3.2.1 Phase One: Surveys

Online surveys are conducted to gather initial data regarding participant understanding and attitudes toward micro-credentials as sensitizing concepts and comparison during Phase Two and, especially, to recruit participants for individual in-depth interviews.





Research participants are selected as a convenience sample of either learners that recently received a micro-credential or had an affiliation (i.e. hiring manager or human resources representative) with an employer known to one of the partner research institutions. Staff from NAIT and the partner institutions develop lists of survey recipients from Student Information System (SIS) data for learners and Client Relationship Management (CRM) data for employers. Invitations to participate in the survey are sent directly from the identifying institution to avoid any need to share contact data between the partners. Communication from institutions to their students and alumni is in accordance to institutional Freedom of Information and Privacy Protection (FOIP) and Canada Anti-Spam Legislation (CASL) requirements.

At the close of the survey period, there are 222 completed surveys from earners and 287 completed surveys from employers. See Appendix A: Survey for complete survey questions and response summaries.

3.2.2 Phase Two: Interviews

For the interview phase of the study, survey participants who self-identified are contacted by the research team and given the chance to participate in an approximately 30-minute, semi-structured interview. Following the grounded theory strategy known as theoretical sampling, the team also prioritize additional interview participants from employer groups not represented in the initial sample, especially those involved in renewable energy, project management, technology and Indigenous owned organizations of the labour market. The interviews are designed to collect detailed data regarding individual understandings and perceptions related to the potential value proposition of micro-credentials from the perspectives of both earners and employers.

Interviews are conducted online using Microsoft Teams. The interviews are recorded and transcribed with the permission of the participants, who are also provided the opportunity to review the transcripts to provide correction or clarification prior to data analysis.

At the conclusion of the interview phase, the team recorded 34 employer interviews and 23 earner interviews.

3.3 Data Analysis

Grounded theory is a research methodology that seeks to generate theory from data, as opposed to testing a pre-existing theory. It is a systematic and inductive approach to data collection, analysis, and interpretation that aims to identify patterns and relationships in the data to build a theory that explains the central phenomenon being studied. This methodology emphasizes the iterative process of collecting data, coding, memo-writing, and constant comparison of data with emerging categories and concepts, leading to the development of a theory that is grounded in the data. Grounded theory is used in qualitative research and is especially useful in exploring complex social phenomena and processes.

For this study, the interview transcripts are coded by the interviewing researcher to determine overarching thematic categories (and their defining properties) of greatest importance to stakeholders from both groups, i.e., employers and micro-credential earners. The research team then works together to compare and rationalize the initial codes to develop core and secondary categories. These categories are clearly defined, and their relationships mapped using the conceptual framework analysis methods described by Jabareen (2009), to produce a conceptual framework of stakeholder beliefs and expectations for the value proposition of micro-credentials.

3.4 Rigour and Trustworthiness

The concepts of validity and reliability are commonly applied to describe the trustworthiness of research but have roots in quantitative methodology and can be challenging to apply directly to qualitative research designs. Qualitative researchers also seek such methodological rigour and employ concepts such as credibility, auditability, and fittingness to describe and defend the trustworthiness of their findings and conclusions (Cooney, 2011). Morrow (2005) further compares concepts of rigour between qualitative and quantitative research methodologies and explains that the term “...credibility in qualitative research is said to correspond with concepts of internal validity in quantitative approaches, transferability to external validity or generalizability, dependability to reliability, and confirmability to objectivity.”

To enhance the rigour and trustworthiness of this project and its conclusions, the researchers employ a number of strategies, including collection of comparative data through both surveys and interviews, theoretical sampling to address notable gaps in the collected data, and collection of sufficient data to provide confidence that a meaningful level of saturation has been reached.

Further, this study employed a constructivist approach to grounded theory as elaborated by Charmaz (2014) to help ensure the data is co-constructed between the research participants. The research methods focused on social justice inquiry through grounded theory (Charmaz et al., 2018) and the collection and interpretation of data from various power dynamics is integrated in the research methodology and data analysis (Denzin, 2007; Hood, 2007). Development of the final conceptual framework follows the methods outlined by Jabareen (2009) along with other aspects of grounded theory analysis to develop a theoretical framework that emerges directly from the gathered data.



4.0 Findings

Using the survey and interview data from research participants, several noteworthy findings about how micro-credentials are conceived and valued by both earners and employers are realized. The survey (see Appendix A: Survey) of employers (n=222) show that only half of employers look for micro-credentials when assessing qualified job candidates. On the earner side (n=287), only 12 percent credit their micro-credential with helping them to secure new employment or a promotion. The interviews with employer (n=34) and earner (n=23) research participants initially reveal a general low capacity to distinguish micro-credentials from traditional credentials. Nevertheless, with some further specific questions, research participants could identify some basic defining elements while challenging other optional features proposed in previous research. Most significantly, research participants reveal an overwhelming partiality for trusted traditional credentials. However, some notable exceptions are identified where a micro-credential may represent significant value, especially when labour market demand exceeds the supply of candidates with trusted traditional credentials. Grounded in the data collected, recommended paths forward are recognized that would increase the uptake and perceived value of micro-credentials amongst both employers and earners.

4.1 Micro-Credential Definition

Micro-credentials are a relatively new and increasingly popular phenomenon in post-secondary education and training. Yet, despite rapid proliferation, there lacks a collective understanding among both employers and ‘earners’ of micro-credentials’ purpose and value in the labour market. While familiar with the ‘micro-credential’ term, neither employer nor earner research participants are generally able to clearly make significant distinctions between a micro-credential and a traditional short course in the post-secondary environment. Employer research participant A17’s response is typical of many employers that do not differentiate between a micro-credential and a certificate of achievement awarded for traditional short courses:

I would probably rank them [micro-credentials and certificates of achievement] about the same just because I don’t know how in depth each one gets. Is a micro-credential trying to be more than a certificate of achievement, getting more in depth? I would probably rank them about the same.

Another employer research participant, A19, states simply that “People in industry today just don’t know what they are.” Similarly, earner research participant B5 notes that “I didn’t notice any difference. [One course] was considered a ‘micro-credential’, but the rest of the courses were not. I don’t know what the difference is.”



However, under further exploration with the research participants, three defining features emerge that are compatible with other recent Canadian studies (Colleges and Institutes Canada, 2021; Gooch et al., 2022). First, micro-credentials take a relatively short time to complete and focus on a specialized task or area of knowledge. Second, micro-credentials offer earners a digital icon that can be displayed on their respective social media accounts (i.e., Twitter, LinkedIn, etc.). Third, micro-credentials are earned through assessment by a recognized qualified party in a manner that reflects actual duties found in a workplace. The previous Colleges and Institutes Canada (2021) and Gooch (2022) studies also note ‘competency-based’ and ‘stackable’ as two further characteristics that may apply to micro-credentials. However, even after probing questions, both employer and earner research participants are either unaware or indifferent to both of these additional distinctive micro-credential characteristics.

4.1.1 Short Time to Completion and Specific Focus

The most common defining element understood among both employer and earner research participants is that micro-credentials focus on a specific skill or area of knowledge and take a short time to complete relative to traditional credentials like certificates, diplomas, or degrees. Employer research participant A1’s view reflects that of many employers—that micro-credentials are very much like other training credentials save they permit a more incremental delivery or ‘modularization’ than traditional credentials and may better facilitate regulatory requirements such as provincial apprenticeship certification:

The difference between micro credential and others [credentials] is your time frame to accomplish them. If I look at an apprenticeship where we send students away for the eight weeks a year. In micro credentials you’d only send them away for a week at a time and it would be on a specific topic and they would be taught the theory and some hands-on on that topic and do a test to say, OK, you’re competent in this area. Being a micro credential of one specific piece [of the apprenticeship training] then you, and I would imagine there’s a list of many of them, that depending on who’s hiring or who the employer is, maybe they specialize in engines. I would pick micro-credentials that all apply to that engine market, that engine field. Or if I’m a heavy equipment [mechanic], I would pick micro credentials that related specifically to heavy equipment. You know, hydraulics, electrical, different things like that. And instead of having a four-year apprenticeship, you would just have a whole bunch of these different micro-credentials, that at the end of the day, they still might equal a full apprenticeship or a Red Seal but it can be done on a different time frame or a different path, whatever meets the employers needs.



Among earners, like earner research participant B3, there is a consensus that a micro-credential’s duration and intensity are not comparable to traditional credentials:

I have a Master’s in engineering, so you can’t compare a course in engineering to a micro-credential, a fourteen-hour course...The amount of work that’s required...There’s definitely a huge difference.

Earner research participant B14 believes that a micro-credential might even be a relatively relaxed learning environment to investigate new learning opportunities without a large investment in terms to time or other resources:

...It was kind of a low-cost way to investigate that space too, and to just get a bit of knowledge without investing a whole bunch of money or time and see what’s happening.

Likewise, compared to traditional credentials, micro-credentials are seen as a ‘no pressure’ environment, particularly in staff development circumstances as noted by earner research participant B2:

I think with the micro-credential there's no pressure, if I were to fail it, there's no consequence, it was a free course. I'm there for my own learning experience so I'm going to take what I get out of it and how much effort I put into it. I think that was the biggest difference is there's no pressure in doing it compared to a formal course where you know that's going on your transcript forever no matter what your grade is, so that would be it.

Conversely another earner research participant B15 notes that learning objectives are sometimes considered very ambitious due to the low instructional hours assigned to micro-credentials, which may reflect very different designs and experiences inherent in various micro-credential offerings:

I guess as opposed to a full semester course, it's a lot more accelerated. I feel like a full semester course you don't really get into much until the second month and then you'll start doing assignments or something whereas with a micro-credential, you got a week assignment and then it's pretty much every week.

Micro-credential duration is almost universally understood in terms of course hours among both employer and earner research participants. Durations cited range broadly but are typically between six and fifty hours over a period between one day and twelve weeks. The relatively modest time commitment, frequently combined with synchronous and asynchronous online delivery, usually provides a measure of accessibility appreciated by those earners who must manage concurrent work and/or family commitments as noted by earner research participant B9:

I have a little baby now, so I definitely wanted something that I would finish on time. I was taking it and working at the same time, so I needed something that would not disrupt my day-to-day work as well...especially because the timing was outside of work hours, it was perfect.

The relatively small number of instructional hours is a draw for many earners as noted by earner research participant B12:

Realistically, the time duration and the amount of commitment was a lot more bite size and I could fit it into my schedule. Whereas, taking a full course or part time course load from an educational institution would be a little more daunting. Something like [a micro-credential] it's a slog for four weeks, six weeks, I lose an evening or two each week, it's not a huge concern. Whereas I do that for a year, that can be a quality of life change that I wasn't really looking for.

Likewise, earner research participants fail to observe distinguishing factors of a micro-credential compared to any previously taken short course. Earner research participant B18 notes:

I think con ed courses and micro-credentials are virtually equivalent and I don't want to say they're equivalent, but the only reason I'm saying virtually equivalent is because I can't come up with a useful distinction between the two in the moment. I do think though that a certificate represents a collection of courses or potentially a collection of I guess micro-credentials, since they're virtually equivalent. So, should they be different? It kind of feels like old wine and a new wine skin type of thing.





4.1.2 Distinct Workplace Task or Area of Knowledge

Specificity and applicability to the workplace are regularly cited by both employer and earner research participants as principal micro-credential characteristics. Reflective of the overall feedback, employer research participant A27 states that a micro-credential ‘.... is a subspecialty within a field of maybe scientific or academic work where a student has decided to focus energy and time...’ Earner research participant B12 reveals the general expectation that a micro-credential is:

...much more hands on and applicable rather than the pie in the sky. Here’s how to do your calculus, great. Are you actually going to use that? No... Everything I learned in the micro-credentials I find I tend to use more. I found it much more applicable to the daily life and daily workload, whereas I couldn’t do linear algebra to save my life again, right? But I took a full course on it. You know what I mean?

The relevance to the workplace is also understood by employer research participant A8 as a key micro-credential characteristic:

I would define a micro-credential as a good mix of on-the-job experience and skill sets developed to be able to perform the job mixed with the right level of technical training or desktop training for the staff member to understand what it is that they’re doing on the task as well and where it’s coming from.

“[A micro-credential reflects] a specific skill set we’re needing to do work” says employer research participant A26. The specific nature of a micro-credential can be a meaningful advantage in some cases when both hiring and designing employee training programs states employer research participant A13, as the employer identifies “specific tasks and activities and either find the training or build the training and then make sure that we can use that as a grounds to determine competency or justification for competency.” The relevance to the workplace is also noted extensively by earners such as earner research participant B8 who appreciates the Artificial Intelligence (AI) workplace simulation component of their micro-credential:

[The micro-credential] was more of applying the knowledge you have. It was practical because for me I was doing a customer service micro-credential, so it was practical examples of dealing with the customer...It was very straightforward, it wasn’t beating around the bush which was nice...I think it pointed out the areas that you also needed to work on. Yes, for me, the instructions and what to do was very clear and it gave you an idea of where you are lacking and where you can improve on.

Employer research participant A3 reflects the consensus view that a micro-credential focuses on a very specific topic, subtopic or skill that is relevant to an employer:

When I think micro credential, I think a subset of what would have been a larger course. Maybe it's a week-long module focusing on a particular aspect of something [an employer] might care about... something specific that would be interesting to me as an employer or a skill set I would know my people would need.

Emphasizing the experienced professional as the target learner in many micro-credentials, earner research participant B9 highlights the workplace application as a key distinction between micro-credentials and traditional credentials:

There's a little bit of difference. Micro-credentials are geared towards the working professional, because of the pace at which the course goes. You need to have had some type of professional experience to be able to handle that. It's a little bit different, but for the level I'm at, professionally, it was exactly what I needed.

The practical distinction in micro-credentials is echoed by earner research participant B17:

I enjoyed the micro-credential more because the certificate I took [previously] was just somebody speaking and teaching versus the micro-credential, we had assignments and you had to apply it to your actual work. It was from a different lens but I don't know if every micro-credential is that way.

While many employers note that micro-credentials' specific nature are a strength in some contexts, it can also be a weakness in others. Micro-credentials supporting work using specific technologies have value to employers but may quickly become outdated as technologies change. There is an adaptability factor recognized with many trusted longer traditional credentials that reflect an overall understanding that may be missing from someone without them. Employer research participant A23 notes

...when I look at someone who has a bachelor's degree or even like a two-year diploma, I think I assume that there is a, perhaps, bit more breadth than the title, the diploma. Even if I were to look at individual courses... the sum is more than the whole of those parts in some way. Because, assuming their program was well designed, you know things kind of intersect and ladder. Information and knowledge and skills kind of flow from one course to the next. Whereas...micro credentials are more siloed.

The importance of workplace relevance to employers is succinctly addressed by employer research participant A7:

"If all the micro credentials are, like I took some dog training and I know I'm this and I'm that. I'm like, wow, that's pretty cool, but how is that going to make me money?"



4.1.3 Digital Icon

Upon the successful completion of a micro-credential, there is a wide understanding among both employer and earner research participants that a digital icon is awarded for presentation on the earner's profile in social media platforms such as Twitter and LinkedIn. While some learners had made the effort to claim and post their digital

icons, it is also common to hear that this was something they intended to do but had not taken the time to figure out and complete yet, as noted by earner research participant B18:

Yeah. I actually was checking just before we had our conversation and I thought I had, but I actually can't find where I posted it. So, I now have an action item for after the conversation to go figure out where the badge went because I know I got a badge and I know it's somewhere. I think it might be on Credly but I have to go figure out if I can remember my password for that and if that is where it is, then I have to hook it up to LinkedIn. The pain in the ass factor right now is apparently higher than I was willing to pay...

In addition, employer and earner research participants are unsure or even skeptical of how much value the digital icons have in the job search or candidate selection processes. Earner research participant A7 is dubious of how employers consider a micro-credential's value-add to employability, particularly comparing a multitude of micro-credentials to a more long-term traditional credential like a degree:

I think being biased towards degree-type education as opposed to what seems to be a trend of increasingly small quick credentials and badges where you can display them in various places, I don't see a lot of value in it.

However, while the actual digital icon is considered of little value, earner research participant A7 later recognizes that the skills and knowledge developed through the course may make one a better employee or a more convincing candidate in an interview, even if a digital icon itself does not give much credit with employers. Likewise, with the realization of the digital icons benefits to the earner are sometimes only realized later in the process, earner research participant B23 notes that the digital icon “wasn't that important, but now that I have it, I feel like it's pretty good.”

Earner research participant B5 notes that it is unclear if a micro-credential helps in their job search but is more open to the possibility that a micro-credential can help in some sectors such as technology:

It's hard to say whether employers check LinkedIn. I don't know if they checked. That icon on LinkedIn, it's not on my resume. On my resume I said I've completed [education institution's] courses, like the AutoCAD course. I don't know if they checked LinkedIn....Maybe it's important for people who like IT. People that usually find jobs on LinkedIn. It shows that they have completed the course, so for them it might have more value. I don't know.



To employers, not all digital icons are equal. A clear requirement for micro-credentials to have value with employers is the need for an effective evaluation of the learner. Multiple employer research participants note that some online icons can sometimes be earned through issuers like LinkedIn Learning without an evaluation. Employer research participant A17 is representative of many employers interviewed:

To be honest, I would maybe say at the beginning right off the bat, I would think of a micro-credential almost like a LinkedIn learning thing, where if somebody got a LinkedIn learning thing, I'm kind of like, well, that's cool. Well, I guess I would rank it higher than that because I would think it matters because they got something and I don't base people on what they've got as a credential because I don't like to do that, but also if somebody's like, well, I've got 30 LinkedIn learning credentials that wouldn't really matter to me. I'd be like, well, that's cool, I watch YouTube videos on project management....

4.1.4 Optional Criteria

While there is broad agreement on the above three defining micro-credential criteria, both employers and earners clearly do not share a common understanding of the optional defining criterion of being competency-based and ‘stackable’ as defined in recent studies (Colleges and Institutes Canada, 2021; Gooch et al., 2022).

4.1.4.1 Competency-Based

Research participants, both employers and earners, reveal a very low level of understanding or even interest in micro-credentials that are based not upon traditional course instructional hours but rather the earner’s demonstration of the required skills. The achievement and certification of a skill is overwhelmingly understood in terms of time. “You had to put in the hours” states earner research participant B17 reflecting the vast majority view. Research participants largely conceive and measure micro-credentials in terms of course or credit hour equivalence. Earner research participant B7 agrees that while the learning experience is different, the measurement is consistent with a traditional course or credential:

So compared to 7 1/2 years in the university classroom it was quite different, mostly just shorter. It was about an hour a week, maybe an hour and a half. Something more like a 1.5 credit course.

While it is a vital consideration, how competency is achieved is conceived of in hours of instruction and/or practice, as stated by employer research participant A17 and typical of most employers’ understanding:

With a degree you know exactly how long somebody had to work and what they had to put in it. With the journeyman certificate you know somebody had to put in like 1380 hours every year for four years. It would be, in my opinion, beneficial if you had to have [in a micro-credential] a certain amount of hours or something like that and then an exam. And it’s just like every micro-credential is a minimum requirement of this amount of work, then you know exactly what it took to get that micro-credential.

It’s kind of like if everybody’s got micro-credentials just like, well, this one took 200 hours of work, this one was 50 hours of work, this one had an exam, this one just had like three easy questions that were flip over cards that you could answer four times. Then at the end of it, you get your micro-credentials. So, that’s my thought, when you know exactly what somebody had to put into it, it makes it easier or more thought of, in my opinion.

Employer research participant A17 further adds that the challenge with simply demonstrating a skill as opposed to completing a specific number of instructional or practice hours is that the employer is unsure if the tested competency is comparable to the specific job requirements:



It's a micro-credential. You're not getting a degree where you go to university every day. You're not working and it's not at your own pace. You have courses you have to go to. Same with a journeyman ticket. You have to go to school for two months. You have to be there. So, it's definitely tougher because with these online learning people can do it faster or people can do it slower so it's kind of tough to say. Demonstrating the skill, especially for what we would be looking for, where if somebody was to take that (advanced micro-credential) I would want to know that they got their hands on it and had to apply it in front of somebody and they've tested it like they did a (technical) test or something to see how well they did. Then we're able to talk about anything that they had to fix and why and stuff like that. That would be probably more valuable to me because they obviously had to take the course and go through the material.

Employer research participants repeatedly demonstrate a noteworthy combination of a willingness to accept trusted credentials as a proxy for earners' generally suitability for a job, yet consistently state the need for the employers themselves to assess competence against specific job requirements. Employer research participant A11 reflects this sentiment:

When you see these [micro-credentials] sit on a resume or things like that, it's what you can prove, right? It's not necessarily what you know because you can go out and take courses or have these competencies completed, but you may not be competent in it until we actually put you into that environment. That's an interesting one, it's a difficult one right off the bat to know if it's just something on a resume.

Employer research participant A9 is representative of some employers who consider that workplace competence cannot be reliably demonstrated anywhere outside of the workplace:

Competency cannot be determined in a classroom. In the trades it is can you execute what you think you learned in a book? I guess that micro-credential, whether it's valuable or not, that's something yet to be determined. A piece of paper does not mean you're competent and if it's in using new technology in the field to ensure that you're meeting a standard then I need to know that you can use the tools of the trade of that moment, whether it's a computer or sensors or something else. I need to know that you can learn, take off the page, what you learned, and you can still do it so competency is still going to be assessed by the employer in the field. A micro-credential might give them some comfort that there's something to work with I guess, but I don't think it would ever be considered a measure of competency.

Similarly, employer research participant A13 says that:

...even if somebody has the appropriate micro-credentials, you still as an employer are required to assess competency. Just having a degree is not a check the box, now we're done, so and so is deemed competent. You still have to do your own competency assessments and if there's more study, more work, more supports required, then you need to do that. Micro-credential or not, you still got to do that competency verification.

Save one, all the micro-credentials that the research participants experienced were structured similarly to a traditional course with an assigned number of instructional hours and sequential learning steps. In the outlying micro-credential, students were first assessed against the target competency in a formative evaluation. The





deficiencies in the formative assessment formed the learner's personalized learning path. There was no specific instructional time allocated to any task in the learning path. While the earner research participants in this micro-credential appreciated that flexibility, the overall approach was unfamiliar says earner research participant B8:

To be extremely honest, when I was selecting the micro-credential, I wasn't sure how long it would take and all the nitty bits of it, but I was surprised when I was actually taking the micro-credential, it went pretty fast. It was smooth sailing, if I compare it to other courses where you have to go through a whole bunch of things.

... Yes, dealing with customers and showing the specific skills that we need, empathy, persuasion, all the different factors, so we apply that and the real-life examples.

... so for the assessment, it was basically role play with the computer, the robot or whatever you want to call it, where we would get emails from customers, and we have to help them. We had a bunch of information provided to us and we had to help them with their issue or whatever they needed. We had to apply the skills of empathy, persuasion to try and solve their problem, to keep them as a customer or whatever the case was, there was quite a few different categories. It was an online assessment and you would get your answer on whether you correctly did it or not immediately afterwards.

... I definitely had a positive experience with it, and I would recommend it, I would do it again. I'm a lifelong learner, so it's something I would do again.

Earner research participant B6, when discussing the same micro-credential, also appreciates the flexibility and the novelty of the competency-based approach:

It was something new. It didn't have the courses that you would usually have in training. It didn't have classes first, before you get assessed. It was quite different with this micro-credential, because I got assessed first. Afterwards, if there were any areas that I failed, I was told that I was going to do a mentoring session. But since I passed that micro-credential, I got the badge, and I didn't need to go through any mentoring sessions with an instructor. That was quite different from what I'm used to. The process was quite fast, and it didn't require any other inputs from people. I did have one initial appointment with one of the career coaches. But from then on, I took the assessment, I passed it, and then I got the micro-credential. The process was quite fast.

Given the novelty of the competency-based approach, a degree of confusion is expressed by earner research participant B6 as to what difference each earner should expect in the competency-based process:

I've mentioned earlier that it was a different experience, because you have an assessment before you take the courses. But I think that even an introductory course would be helpful before taking the assessment. Although we did have a meeting with one of the career coaches, before we took the assessment. But I think preparing the clients before taking on the assessment would have had them better prepared. I've also heard that a number of people failed the assessment on their first try. I'm not sure whether that's something we can avoid, or lessen, if there were courses before taking on the assessment. Maybe that's something to consider with (the issuing organization) as well.

The way that earners consider the cost of a competency-based as opposed to a course hour micro-credential poses an interesting question. As earner research participant B12 points out, among earners costs are closely considered with the assigned micro-credential instructional hours:

The price point was fantastic actually, compared to a lot of other courses for comparable time, I would say because it was estimated about 20-22 hours. Of course, time and then the cost for a lot of other technical or even some of the soft skills ones that I've heard very mixed reviews on. For instance, stuff like Dale Carnegie, they're a very high price point, for instance, like to bring back to the skill that you develop at that and go, OK, you go from A to B, and I'm leery to spend more than I would on the micro-credentials courses than something else that's not quantifiable.

Unfortunately, because the competency-based course was only part of an overall program to support new immigrants to Canada, it was not possible to accurately assess if earners would be more or less willing to invest in a competency based micro-credential than a typically structured course hours micro-credential.

4.1.4.2 'Stackable'

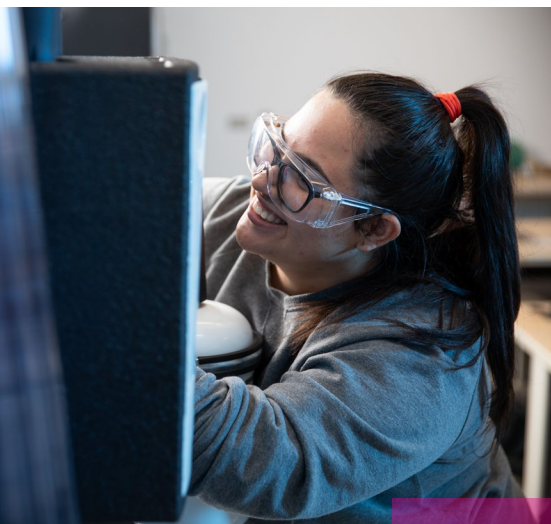
The coupling of micro-credentials to provide credit towards a larger traditional credential such as a certificate, diploma or degree provides many advantages to earners and employers. While 'stackability' is not a core defining criterion of a micro-credential, some employer and earner research participants note the potential application and added appeal. Earner research participant A7 says "if you can go in and know that you take this, this, and this, and then you come out with something greater than the sum of the parts then that would be a big value add." Likewise, employers such as employer research participant A1 observe that when larger traditional credential and broken down to a series of micro-credentials, accessibility for many employees and learners will increase:

Instead of having a four-year apprenticeship, you would just have a whole bunch of these different micro credentials, that at the end of the day, they still might equal a full apprenticeship or a Red Seal, but it can be done on a different time frame or a different path, whatever meets the employers needs.

At the degree and post-graduate level, employer research participant A29 comments that "if I could take all the MBA courses through a micro credential, in my own time, and over six years complete an MBA based on micro credentials, and do distance learning... to me, that's a fantastic way."

Conversely, some earners are concerned that a partial completion of a longer credential can be interpreted negatively by employers. Earner research participant B5 says that "I'm just sad that I couldn't complete the certificate in geomatics. It's an incomplete course and certificate on my resume. I had a few interviews, and they were asking me, when are you planning to complete it?" Similarly, employer research participant A9 remarks that a micro-credential should have value to an employer independent from a longer traditional credential:

For me it doesn't have to lead somewhere if [the micro-credential] solves a very real-world problem.... If it leads to something greater, cool, but I don't think that's important to most trades people. If it doesn't lead to a degree, I don't think actually on my side of the desk, when I'm listening to people talk, they don't care. They want to be able to do their job, they want to be compensated for what they're doing. They want to meet the rules of regulation and legislation and they wouldn't have been tradespeople if they wanted to have a degree.



Employer research participant A23 agrees that micro-credentials “stacked to larger traditional credentials are more of a ‘nice to have’ but if it’s not there then I think there has to be really clear communication to learners that this doesn’t, this may not ladder into sort of more traditional education.”

4.2 Micro-Credentials’ Impact When Labour Market Demand Exceeds Supply

Employer interviews clearly represent a strong preference for, when possible, hiring employees with trusted traditional credentials. Likewise, earners are also cognizant of employers’ widespread preference for trusted traditional credentials. However, conditions are frequently noted when employers are significantly more willing to value micro-credentials during the hiring process. First, when there is not yet a trusted traditional credential for a relatively new occupation or when the labour market demand substantially exceeds the supply of candidates with the trusted traditional credential. In these cases, micro-credentials are regularly viewed as a proxy to bolster validity of candidates’ unfamiliar academic credentials and/or unverifiable work experience. Micro-credentials from a trusted source can also help convince employers of the transferability of candidates’ skills in related sectors. Consequently, in times of labour shortages, micro-credentials serve to increase the labour pool deemed qualified for a job by validating academic and work experience that would generally not be considered in times of ample conventionally qualified applicants. Second, relative to traditional credentials, there is a greater acceptability of micro-credentials among employers that are seeking to increase the diversity of their workforce or hire from specific communities. Resources firms, for example, often prioritize hiring from rural or remote small communities nearby their extraction sites. Third, in newly emerging occupations where trusted traditional credentials have not yet been established and scaled by issuing bodies, employers are willing to accept candidates with even an introductory micro-credential as a strong indicator of interest and affinity for innovation in the sector. In these emerging labour markets, a candidate’s micro-credential serves to affirm the potential value of further training investment from the employer. Fourth, the technology sector has a longer history and overall greater confidence in micro-credentials than other sectors. Although many software micro-credentials are recognized as industry standard requirements there remains a notable appreciation for traditional credentials as a sound foundation for new employees to build their workplace competency. Despite the overall preference for traditional credentials among both employers and earners, the exceptions are where issuing bodies should concentrate future micro-credential development.

4.2.1 Potential to Leverage

Based on the evidence from employer and earner research participants, micro-credentials are typically considered most impactful when demand exceeds supply of candidates with trusted traditional credentials. In these cases, a micro-credential can serve to validate previous work or academic experience as still relevant to a specific job. In addition, even if a candidate has little relevant experience, a single micro-credential can be a strong indicator to employers of the candidate’s interest or affinity with the job requirements. A micro-credential, as noted employer research participant A11, “...just adds a little bit of value and other aspects of it, something that could be leveraged off of.”

4.2.2 Related Work Experience

Research participants generally have a very positive view of micro-credentials when they are coupled with comparable work



experience. The micro-credential is particularly valuable in validating work experience. Earner research participant B9 says, “I’ve seen a lot of positive feedback from [the micro-credential earned]. In my current job, I’ve learned what is relevant, and I got that with the help of the course. I do get feedback from my professional experience, less from my education, but I think it’s all interwoven.” Similarly, earner research participant B4 considers micro-credentials as an effective way to fill distinct gaps in work experience:

I do a fair amount of project management in my work. I do long range planning for [employer], so policy planning, managing applications to change some of our higher-level land use plans, managing consultants who work on policy development projects for us. It was really an opportunity for me to formalize and expand and fill in any gaps in the knowledge that I had kind of picked up over several years of doing this kind of project management.

Employers agree that micro-credentials are credible ways to address gaps in a candidates work and/or academic experience as jobs change over time. Employer research participant A12 discusses how micro-credentials keep employees current despite varied academic and work histories:

I can think of lots of examples of engineers who maybe went through university and didn’t take a 3D software program, or advanced Excel. But I’m talking about something much more technical like AutoCAD or SolidWorks and millwright, who might have taken all the millwright training, but they never took lubrication.... Maybe they got trained, maybe they didn’t and now they need to do it. Quite often people have very general, especially with these recognized programs, trades, diplomas, degrees, they tend to be very generalized, and they end up working in some facility where the skills are quite specific and they might have some exposure to oil and gas processes, but now they’re actually in the plants and being asked to do something, and there’s some level of specific competency required. That’s what I think of the micro-credentials is someone saying, hey, this is exactly—even in a lab where they do lab testing, very rarely would people actually take those tests at any kind of accredited program at a school, but when they come to the mills we train them and it’s probably like a four to six week training program. They sit with somebody else, they get some testing, they’re qualified and then they get paid for those skills.

Employers also note that micro-credentials emphasize not only knowledge gaps but the practical application at the worksite. Employer research participant A17 says “...you could be the smartest engineer out there, but if you get on site and you don’t know what you’re looking at or how to tell the guys how to do it then it’s a moot point.”

Micro-credentials are also seen as practical opportunities to demonstrate the transferability of their current skills and experience to new types of occupations. Earner research participant B1 agrees that the micro-credential can validate the transferability of existing skills even in the context of a major career change:

It would be a major change because I have experience in brand management and marketing, but I haven’t worked as a product manager. So yes, it will be a major change. I have transferable skills that in my current field that I can use in that, but it’s still a major change.

Employers affirm that micro-credentials are an accepted method to demonstrate their ability to transfer related skills and knowledge from another sector or occupations. Employer participant A3 argues:



..there might be room for someone with a different background that has maybe had industry experience and operation in our type of industry, but not a maintenance background that may be able to work themselves into that based on micro-credentials and experience. I'd say there's room for both [someone with traditional credentials and someone with just work experience].

Micro-credentials are viewed as a viable way to demonstrate a candidate's readiness for a promotion. Earner research participant B3 argues that a micro-credential helps to develop, validate and sustain leadership capability in varied work environments:

I think it's going to help me to get a new job or move up the ladder. But where I think it's really going to help is as a leader. When you move into different areas, and you have different teams, you're going to have different challenges. So, it's nice to have that repository of information. I can go back and look at it.

Similarly, earner research participant B12 says that a micro-credential helps to rapidly identify and address skills gaps needed to compete for a promotion:

[The micro-credential] appealed to me because I was in a more increased supervisory capacity with additional team members, so I was identifying a shortcoming in my own skill set that I'd like to shore up over a few weeks with some additional discussion and coursework.

Employer research participant A9 agrees that micro-credentials are often the most suitable preparation for related higher level job functions:

There are some really standard and old tried and true micro-credentials, if you will, where people who have been in the trades who are smart and able and maybe approaching the mid point of their career are ready to transition into an office environment or an estimating environment or a project leader environment, micro-credentials that would take them from that into an office leadership financial role, those are critical... It doesn't have to be a new and emerging thing to be valuable, but it needs to speak to what an employer needs. Needs somebody who can take that next step, and that pure academic training could be quite helpful in a small bite sized chunk.

Employers understand the need to develop and recognize new skills as a career matures. Micro-credentials facilitate career evolution to leadership roles says employer research participant A11:

I like a lot of credentials that have a lot to do with leadership, teamwork, communication and things like that really add a lot of value to the team. If you've taken some critical conversations courses or things like that, that can really add a lot of value when you're dealing with working as a team. Some of those skills could be lacking in certain groups where you could have every other credential for that particular task, but the ability to work as a team or have some type of leadership training or communication training goes a long ways.



Interestingly, employers also argue that in addition to helping candidates get a job, micro-credentials can help people keep their job by demonstrating the full breadth of their skills sets. Employer research participant A11 relates:

We've gone through a lot of transition, some downsizing and really moving people around and looking at what other possibilities they can fit into this organization, even though they're not in the same role that they originally applied for. A lot of those little micro-credentials help, which is their knowledge in their background in certain areas. We have one individual that was hired for a rescue team but had a credential in emergency management and has now been moved into an emergency management support role as an advisor within the organization, moving away from what they were originally hired for. ... Even my role that I've taken on is I got moved into the role in-house versus hiring external because I had some credentials in this role and that's something our company is looking at leveraging a lot more is who do we already have versus onboarding new individuals and seeing if they can wear multiple hats, what knowledge they have and it could be just competencies or past experience, but also credentials to meet the regulations for different geographic queries.

Another unexpected practice was identified by an Indigenous-owned organization employer that sometimes uses micro-credentials to validate and recognize skills and experience in lieu of traditional academic credentials. Employer research participant A8 says that micro-credentials allow their organization to pay their employees according to their role and contribution to the organization despite a possible lack of traditional academic credentials:

Yeah, like a really good example of this is we actually have a staff member who I pay at a full rate as someone with a degree, even though they don't have a degree based on their job experience and how much time they've spent in the field and working with other professionals to be able to gain that experience. And with them having that knowledge, I've recognized them within the company as having the same level of accreditation, even though it's not recorded.

Overall, it is clear from the data that there is a growing understanding among employers that their ability to seek out effective new ways to recognize specific relevant skills has a direct impact on their organization's continued viability. Employer research participant A12 says:

...(you can be) one of the best educated people in our company but the people that are less educated actually make more money for us. So, how can we help them make more?



Research participants clearly recognize that micro-credentials earned from an organization that is trusted by local employers are an effective way to validate international work experience. A candidate may have work experience in another country or even another region that is relatively unfamiliar to many employers. While often unable or unwilling to validate work experience in unfamiliar contexts, employers do recognize trusted institutions as a clear indicator of relevance towards their local requirements.

Architecture and design services employer research participant A7 indicates the difficulty employers have recognizing work experience in unfamiliar contexts. In particular, employers are concerned about familiarity to local regulatory requirements and business requirements:



[Having a trusted local micro-credential] would definitely bump them up over top of another immigrating or newer Canadian resident to elevate them above someone else who's maybe coming from overseas or is a newer Canadian that we're comparing you to. They've made that initiative to look for something that helps them understand the local conditions, whether it's business, design, architecture, or construction, that would help them to get up to speed a lot quicker... There's just so much for you to learn because you're coming from another country where you have a bit different building practices and different codes.

Earners recognize the need to demonstrate the local applications of their unfamiliar work history. Earner research participant B1 says:

A lot of people like me who didn't grow-up here or do not have work experience here, sign up for micro-credentials hoping that it will make our work search a whole lot easier. It's always very discouraging when you invest in that, and you still face the same challenges you were facing before you even did the course. If I can do that, if I can help the next set of people who sign up for it, that would be really great.

Among earners with international experience, micro-credentials are widely understood as an effective and accessible method to have their experience recognized as relevant by local employers. Earner research participant B6 says:

Well, actually, it was part of my plan to get Canadian experience. Since coming to Canada, I didn't have any other Canadian experiences in terms of work, or even my educational credentials. Everything was from my home country. So, it was part of the plan to get Canadian educational experience... When I was thinking about taking the micro-credential, I was also open to exploring other work opportunities. Although customer service is a transferable skill. I wanted to validate that I had those skills already. It was also an opportunity for me look into the customer service industry and decide if that was something that I could see myself getting into. If, after getting that micro-credential, I knew I had these skills, I would be better able to package myself and present myself to employers. When I had that interview, for the customer service agent, I was able to use the micro-credential to say that I have these skills.... I was able to share about my experiences in my home country, how I handled different types of customers and clients, complaints, whatever situation they were in. The micro-credentials validated that I had those skills already and showcased that to the employer.

4.2.3 Academic Experience

The research participants convey a comprehensive reliance upon trusted traditional credentials as a proxy indicating potential suitability for a given occupation. Related traditional credentials from a known issuing body that enjoy employers' confidence are the primary currency when judging potential employment suitability. However, research participants demonstrate that, in addition to the required trusted traditional credentials, micro-credentials can have a distinct 'added value' effect when selecting qualified candidates. In tight labour markets and in unregulated occupations, employers also indicated a readiness to accept a relevant micro-credential from a trusted issuing body as a proxy to bolster both the quality and relevance of an academic credential from an unfamiliar jurisdiction, such as an international credential.

4.2.3.1 Added Value to Relevant ‘Floor’ Credentials

As noted by widely by research participants, a minimum standard or ‘floor credential’ is often set by employers in the search for job candidates. The ‘floor’ standard can be a regulatory requirement or a certification or experience level that the employer believes is appropriate for the job and matches what they consider is broadly available in the local labour market. Both employer and earner research participants demonstrate their understanding that while micro-credentials do not replace specified ‘floor credentials’, they can provide an added value in competing with others with the same base credential. Representative of many employers, research participant A7 says:

...there’s certain companies that you have to have at least a degree and that’s basically their only requirement and I’m not saying that’s good or bad. It’s just they want a certain level of education, and it doesn’t matter what kind of degree you have.

Yet, for those with the ‘floor’ credential, a micro-credential can be a meaningful advantage says employer research participant A10:

A certified engineering technologist certificate that they hand out or like a CNT, those education or those certifications, we broadly accept with open arms so if you’ve gone through those programs right off the bat we know the level of education that’s coming out of [an education institution] or [another education institution] and we will seek them out. If you have [an education institution] or [another education institution] and we’re hiring for a tech position, I’m going to interview you, period, full stop. The extra micro-credentials definitely add to that....if you’ve completed a [an education institution] program or [another education institution] program as well as achieving certain micro-credentials, it definitely adds to—and there’s value there.

Employer research participant A3 says the ‘floor’ credential represents a basic understanding necessary for adapting to changing technology, regulations or other circumstances that impact the workplace requirements:

I’d say for the maintenance area I would require the diploma first, just because of the broad types of problems that those guys have to deal with and the troubleshooting required, I think they require a base background to be able to do that well.

Similarly, employer research participant A9 says that while the ‘floor’ credential is required in regulated areas like most trades, micro-credentials provide important added value in niche areas:

If you have somebody who’s trained as a plumber who now finds that their opportunity is in working with agriculture and dealing with the sanitation sewer problems unique to a farm, that micro-credential added right onto a plumbing journeyman certificate is a really valuable one because it lets everybody know that he knows how to protect the environment and how to do it right.

Employer research participant A20 affirms the ‘add on’ nature of micro-credentials:

There’s tremendous value there, you have to have the certificate or the degree to start with to get into the workplace but once you’re there I think the micro-credentials are an essential way to help develop skills for working people, but I really think it’s going to be in addition to. It’s not going to be a replacement of. I see it as a continuous training type tool to make sure that people stay current in their skill sets in emerging technology fields.

In areas of rapid technological or regulatory change, micro-credentials are particularly welcome says energy efficiency design and construction employer A17:



I know at [an education institution] there's that high performance residential design and construction micro-credential. That is one that we would look at. If somebody had that, that would be very big for us. That would be a major bonus.

However, employer research participant A9 adds that the 'floor' credential is essential to ensure that there a full scope of workplace understanding to ensure overall quality and to protect the end user as well as the public at large:

When you have a consumer involved, how do they tell the difference between somebody who's been trained to do the full and proper wiring of your house or somebody who's only been authorized to pull wire. In the case of roofing, who's been properly trained as a roofer to do all kinds of roofing over important buildings like hospitals or who's only been trained to do the shingles on my house, and they're very different levels of skill and expertise. If you dumb it down to give the guy that puts the shingles on my house a credential that is called a journeyman credential, how does the public know the difference? How does the employer know the difference? Like dumbing it down lower than it is now is not something that we support or see any advantage on the consumer side or on the employer side.

Likewise, employer research participant A21 says that micro-credentials cannot replace a wide-ranging professional education:

I think in the professional side of things, whether it's trades, obviously with oil and gas, we have a lot of engineers that we hire. I have a hard time believing that the micro-credential would replace the formal training and diploma or whatever they may seek, Red Seal, Journeymen or whatever.

Earners tend to see micro-credentials as a way to distinguish themselves from other candidates with the required academic credentials. Some earner research participants purposefully select niche micro-credentials to have their applications sorted in key word searches says earner research participant B15:

I wanted to get some more formal training, in something hands on within IT. I started to take the programming course because it was at [educational institution]. When I saw the data analytics one, I thought that would be good to tie into cyber security and get some formal training on programming. Even earlier courses had complemented what I already knew [and was on my resume].

4.2.3.2 Related Academic Experience

Particularly when qualified applicants are scarce, both employer and earner research participants reflect an acceptance of the transferability of academic experience to what are broadly understood as related occupations and/or sectors. Employer research participant A7 comments that in such circumstances, an open mind generally prevails when assessing candidates with experience from similar occupations or sectors:

I would say generally you'd have a minimum of an architectural technology diploma, but if someone came along, I would look at other opportunities. I'd look at a person who comes from a different industry or whatever.





Employers always need to be cognizant of full breadth of skills they are likely to need going forward. Micro-credentials are a recognized method of demonstrating sometimes loosely related certifications that may add significant value to a candidate says employer research participant A30:

...if [the candidates] have some course that gives them background in oil and gas, or they have a course that gives them background in a skill we need like video production, course design or animations. We need all those things. Those are things I want to take too, and I want them to be highly practical.

Earners are also using micro-credentials to demonstrate the transferability of their educational experience to emerging areas of the economy and labour market. Earner research participant B14 provides an example by earning a micro-credential to demonstrate the transferability from the traditional energy sector to energy efficiency:

I'm a chemical engineer by training so I have some fundamental engineering skills that I can draw on for the systems that are designed for efficient living spaces so I've got a good technical underpinning for it and can understand the design aspects and engineering behind some of the technologies....I would say I have an oil and gas background professionally. So, my experience with facilities there I think would be pretty transferable to [energy efficiency].

Interestingly, some employer research participants indicate that in areas focused on innovation, a micro-credential could be considered more valuable than work experience. Employer research participant A17 argues that the related training in an energy efficiency micro-credential is a significant value add while work experience in traditional methods may inhibit the innovation that the energy efficiency sector needs.

I would consider that a micro-credential is definitely a plus. I myself am a big proponent for getting educated. You can learn things on site, but that doesn't necessarily mean you're doing it correctly. People have been framing houses for the same way since 1960 and just because his boss said it's the way to do it and his boss said it's the way to do it doesn't necessarily mean it's the right way to do it anymore, right?... Now we're trying to hire guys that have more training in energy efficiency or high-performance home training and that's where the micro-credential in looking for training like that would come in more for sure.

Showing a general enthusiasm for using micro-credentials to address education and even experience gaps in candidate's backgrounds, employer research participant A10 says that the relative scarcity of sector specific micro-credentials is inhibiting hiring people with transferrable skills:

We had a new hire, and he had a plethora of micro-credentials to kind of bolster his background of his education, which was good but basically, that's just getting you into the top pile of the interviewees so we know that he has experience, it's leveraging it somewhat, but there hasn't been any micro-credentials that are specific to our industry.

4.2.3.3 Academic Experience in Unfamiliar Contexts

As discussed earlier, employers typically hire based upon trusted academic credentials or work history. Employers remain reticent to hire new employees that have unfamiliar educational backgrounds. The unfamiliarity may result from the applicant being educated in a different region in Canada or internationally. An international education background from a new Canadian is most often cited as a barrier to recognizing value. Employer research participant A1 notes that:

We still keep running into the out of country credentials that we're challenged with all the time. When we try to cross reference them over to somebody that comes in with a diploma in a heavy equipment trade. But because it's not recognized by Canada, then they have to do this specific special qualification thing which I find that stuff very challenging too. Maybe it's just hard to hire outside people when we don't recognize all the different credentials that are out there. So, I think that could be some of the challenges because the government controls so much in Alberta.

Employer research participant A2 represents the desire of many employers to hire more people with international credentials. Particularly in tight labour markets, employers are re-evaluating 'floor' credentials and making occupations more accessible to those with international credentials:

I think that [micro-credentials] really opens up a lot of opportunity for them and also for an employer who takes a step back and says OK. Do we really need someone with this designation within the association? Sometimes you do. You just need that type of licensing thing that's behind it. Sometimes you don't. Because you may have taken that as a marker to say, OK, someone with this should be able to do these different things, but if you step back and say this is specifically what we need someone to do and someone has gotten that training, then they could provide a whole lot of value that wasn't available to you before. So, I think it opens up a lot of possibility.

Similarly, a related micro-credential from a trusted issuing body serves to validate the related work history of an applicant with and international or unfamiliar academic history, says employer research participant A10

If you're entering the industry, the broader lower-level micro-credentials helps you. I find that it will help you get in the door a little bit easier. Especially if you're an overseas applicant where they've had education from an educational body that we're not aware of, to credit it in their world, and it's a bit of an issue that we've been seeing, but if they've taken that extra step to get any level of micro-credential it just shows that extra initiative that they're ready and prepared to enter the industry.

Data collected with earner research participants demonstrates a wide understanding of the expectation of employers for applicants with international academic experience to validate these credentials to the local context. Earner research participant B9 says:

I think in Canada, preference is given to Canadian institutions even amongst recruiters. A Canadian institution would definitely have a lot more weight than an educational facility based in the United States...Being an immigrant in Canada, all I had were international certificates from Nigeria and from the United States. When I apply for jobs or interviews, they think it's nice to have a master's degree, but they wish it had been from a Canadian institution. Now, I have [a micro-credential] from a Canadian party, and that automatically makes my other certificates more important, more visible. ...I got my master's degree from a school in the United States.



In the United States, that school is very good, it's very well respected. I did actually bump into someone that lived in the United States, and when he heard I had a degree from that school, he was really, really wowed. But in Canada, that does not translate. Nobody cares.

Many earners who are also newcomers to Canada express a continued frustration that their international academic experience is not fully recognized or appreciated by employers. However, earner research participant B8 realizes that a micro-credential from a credible local issuing body is a relatively low cost and low effort method to validate their international academic experience to Canadian employers:

Well, I'm a newcomer to Canada and I was finding it extremely difficult to get employment and I felt that maybe getting a credential in Canada would be more attractive to employers. I do have a degree from [country of origin] and I have lots of experience, but it was extremely challenging to find a job. I came to Canada in November of 2021 and at this point it was nearing a year of me applying and applying and applying and it just seemed like my credentials and my certificates and my experience from other countries just wasn't getting recognized here. I thought that just having some experience in Canada would open doors, maybe employers would be more open to recognize.... [I earned the micro-credential] to show that perhaps I have that customer service, I'm able to communicate effectively some of the barriers that might be in the way of me potentially getting a job.... I do also believe that the micro-credential may have been more beneficial for my peers who didn't have any work experience at all. Some of them came in with no work experience and no educational background, college, or university. I think the micro-credential was a really great opportunity for them as well.



4.2.3.4 Barriers to Traditional Credentials

Diversity and inclusion are critical considerations for many employer research participants. Employer research participant A12 affirms that diversity among their employees is challenging but remains a priority:

We really struggle hiring some of the underrepresented minorities. I don't know exactly why. I think that other industries seem to do a much better job of, and they have for years. I mean twenty years ago they did a better job of hiring women than we did and today they do a better job of hiring those underrepresented minorities than we do. We [recently] are improving hiring [underrepresented minorities] and women.

Accessibility of the required academic credentials is often a significant barrier to continued employment for many, even among Indigenous owned employers says employer research participant A8:

We do find, as an Indigenous community and Indigenous business a lot of the times there are barriers towards employment within the First Nations community and it has to do with the credentials and environmental work. In which case it usually requires some level of degree or credential program that allows them to be able to vote on programs and be qualified and registered as a qualified professional. And so that's definitely one of our big barriers that I see within credentials, especially working with Indigenous groups.

Many employers are re-examining the necessity of specific academic requirements for some occupations. As an effective avenue to qualify and integrate employees from groups that have traditionally experienced barriers to academic and workplace success, employers are sometimes turning to micro-credentials to qualify employees. However, as employer research participant A2 notes, employers are often bound by academic requirements of professional regulations or collective agreements when determining if someone is qualified for employment.

It's an interesting movement [greater diversity and inclusion] and I wonder whether it's kind of a precursor to where other universities will go and their professional development side is making things more accessible and not having the threshold so high on them in terms of fitting into their larger credential system and meeting some of those more specific needs.

One case, as discussed by employer research participant A13, is identified where an Indigenous employer in the environmental sector is creating ad hoc credentials by selecting or developing micro-credentials a la carte to qualify employees of an Indigenous owned organization:

We've actually had to go out and develop our own courses and offer more or less micro-credentials in how do you deal with Indigenous issues and impact assessment, because there aren't formal courses or degree certifications in that space and so it's something that we've kind of had to develop. I would say 90% of the work that we do is centered around these micro-credentials because we don't in practice have these four or five year degrees that we can use particularly in the Indigenous space that is not sufficiently developed or have programs that we can use....Whether it's tickets or certificates or whether we had to develop our own training and make sure that they were deemed competent because that's a big part for me is when you look at particularly in the oil field and around oil and gas, you need to show competency.

4.2.4 Interest / Initiative

Remarkably, in selected—often new or niche areas of the labour market—employers are willing (and sometimes even prefer) to hire exclusively on the basis on demonstrated interest or affinity with a specific occupation or sector. The phenomenon is noticeable particularly when the labour market demand exceeds those with trusted traditional credentials. Sometimes, an occupation is so new that there are no accepted traditional credentials available. In other cases, the availability of accepted traditional credentials falls far short of the demand.

4.2.4.1 Demonstrating Interest in an Emerging Occupation

Employers that are utilizing new technology are often working ahead of availability in traditional training and certification systems. Especially in the credit certification system that requires provincial government approval for access to student financing, program approvals can take many months. In the meantime, employers often must train their employees themselves. Employer research participant A3, a new tech manufacturer in the energy sector, says:

The technical schools around here are not focused or set up to train people with the specific needs of our company in mind. We have a very different set of equipment that what is found in the oil field for example.

Similarly, employer research participant A17 notes that as an organization that values innovation, new employees that have a history of continuous learning and development are prioritized:



I definitely look for somebody, especially trades people, if they're looking for that education, it shows that they're interested and dedicated to bettering themselves. If it's a trades guy who has been framing for the last while and he's just gone about it and isn't really looking to get education or anything like that or advance much, then I'm looking for the guy or the people that are wanting to keep advancing themselves. In the home building industry, you have to keep educating yourself because now it's changing all the time, so you have to seek it out.

Employer research participant A9 argues that issuing bodies need to take their cues from the labour market and develop and deliver micro-credentials in a timely fashion to remain directly relevant to employers that are driving innovation:

I think the most important thing is that in consultation with the employer, that's what's important. What do they need in the moment? What do they want? Where are they short? What do they find? People don't know. That's where [credential issuing bodies] should be building your micro-credentials in my opinion and then finding out what they want by way of demonstration of competency coming out the other door. What I've observed in the few courses that I've looked at carefully, it looks to have been created at the academic level but not with field input and at the end of the day, if it doesn't ring true in an employer's ear. He's not going to compensate more for that.

Similarly, employer research participant A13, argues that because there are often no standard traditional credentials in emerging sectors and occupations, such as those related to environmental assessment and consultation with Indigenous communities, new de facto credentials need to be constructed a la carte by employers and other stakeholders:

There is no university degree in consultation that you can take. There aren't formal certification programs for this work and really in order to be successful in this space, you've got to take micro-credentials, you've got to take training in multiple different areas and usually they're fairly specialized, but you kind of have to do your workflow analysis, your job analysis and what tasks and activities are we asking people to do and then where possible, how can we make sure that people are trained in that space. As a recent example, we've been hiring monitors and they participate in inspections with federal regulators and as part of that, there's an expectation that the monitors would be writing technical reports. With this type of work, there is no university degree or diploma for monitoring.... We've actually had to go out and develop our own courses and offer more or less micro-credentials in how do you deal with Indigenous issues and impact assessment, because there aren't formal courses or degree certifications in that space and so it's something that we've kind of had to develop.

...I think for me, I guess I'm probably in a different space than you are because the majority of issues that I work around and communities that I represent, it's really focusing on how well do you deal with Indigenous issues, whatever those might be. This is where most training providers could do better, I'll say it that way. They could do better in terms of providing that... The question for us is, as Indigenous communities, where do people learn about doing Indigenous impact assessment and as somebody that works in this space at a national and international level, that's really the question because our issues can be and are often very different than your standard environmental lens.





If there are contaminants, bio-toxicity within the fish that could cause long-term health impacts. How do you measure that? How do you assess that? These are the kind of questions that you don't see in a standard impact assessment process, and you don't see in standard training around impact assessment.

4.2.4.2 Demonstrated Initiative

Many employer research participants affirm that simply investing the time, effort, and money to undertake a micro-credential sends a robust and meaningful signal to employers. In tight labour markets, employers are often trying to determine which applicants are most worthy of training investment as an employee. Those candidates that make the effort to learn skills relevant, however loosely, to the employer's sector are viewed very positively by employers. Employer research participant A29 says:

If I had resumes that were tied, and one person is showing they've taken a number of micro-credentials versus somebody that's done nothing... If they're tied otherwise in experience, I think that would push somebody over, especially if it's knowledge in areas that are beneficial to the role and if nothing else, that dedication to continuous learning is important. Showing that growth, that they're constantly trying to learn more, I don't think it hurts at all. I think it would actually be beneficial.

Likewise, employer research participant A1 agrees that even an introductory micro-credential can be convincing evidence of an applicant's commitment to learning and sustaining the occupation:

If somebody shows me that they're already heading kind of down that path and that they have that passion or that interest in those fields that we're looking to hire, that all goes along way. You're making a life decision already. You have a direction that you're headed. How can I help you get there? We'll hire you, and then we'll advance your skill set from that point on. But when it comes to the apprentice piece, we still have to lock them in to an apprenticeship right now, especially in Alberta.

Employer research participant A10 agrees that even an introductory micro-credential can be very influential in hiring decisions:

If you're entering the industry, the broader lower-level micro-credentials helps you. I find that it will help you get in the door a little bit easier....If they've taken that extra step to get any level of micro-credential it just shows that extra initiative that they're ready and prepared to enter the industry.

For employer research participant A7, a micro-credential is a very significant indicator of an applicant's interest, ambition and even work ethic.

When people just take the initiative it's like, well, you're ambitious. It's one thing to say in an interview, I work overtime and I work my ass off, it's like, OK, that's good. Oh, but look you've taken, from these accredited institutions or universities or professional organizations, these other courses or you have credentials. To me if it's just a course, that's good, but if it's a micro-credential I think that shows obviously legitimacy to something.

For many employers, the topic of the micro-credential is not even the point, just that the applicant is making the effort to continue learning says employer research participant A29:

Let's say I see somebody who has the basic qualification. They have a diploma, the degree at a trade, whatever the case may be. And then, they take a micro credential every year. So, they have one in project management, and one in cooking, and one in whatever else. Whatever these areas of interest have been for them. I think that demonstrates interest in learning, which is never a problem. That's something that some people would overlook. So, I would put a micro-credential in my resume.

Conversely, employer research participant A9 did have some reservations about even an introductory micro-credential raising unwarranted expectations in candidates who might price themselves out of the market:

It is such a physical hands-on world that we live in, that people coming with a credential that says they know a little bit about power tools and they know a little bit about safety isn't an indicator to our employers whether they're going to make it or not. They will come with a micro-credential, and they'll expect a start point from a pricing perspective on their wage to be higher and I don't believe it will be justified. I think what our employers would say is you put somebody out there for six to eight weeks if they're still there at the end of six or eight weeks, that's the time to start spending money on them.

From the earners perspective, taking even an introductory level micro-credential helps the earner to make an informed decision about their personal investment in the new occupation and sector. Earner research participant B14 says

The general topic was efficient home design through [education institution] and the purpose for me was to just get the latest and greatest on what efficient home designs look like and really beginning from a consumer or homeowner point of view. I was also somewhat interested in what that space looked like from an investment or career perspective as well, just to see who is active in the area and what was going on.

Similarly, earner research participant B3 notes that each micro-credential—even in a wide variety of subjects—provides some current practical understanding of real workplace issues that can be utilized on an applicant's resume or in an interview environment:

No one can put on their resume that they've done all these little courses everywhere. Employers will always throw all these things at you, project management, that kind of stuff. That's one value to the micro-credential, even though I don't really care about the badge. It is nice to have it on your resume, that you've done something. It's a customized course list, but at least it's showing that you've done something. You can put as a one-line item that has value.

4.3 Issuer Credibility

Among the most consistent and significant issues research participants identify is concern for the quality of micro-credential programs, especially a focus on trusted delivery and accreditation sources. Employer and earner research participants recognize that the value of micro-credentials is heavily influenced by a number



of interdependent factors that include: i) if and how the earner was assessed, ii) level of familiarity with and perceived competence of the micro-credential issuing body, and iii) joint recognition with parallel regulatory, professional and/or vendor standards. Earner research participants also note that while micro-credentials can be an accessible method to verify their skills, there is a concern that employers do not recognize micro-credentials as having the same validity as traditional credentials. In short, the perceived quality of different micro-credentials can be erratic. As earner research participant B7 notes, “Whether [the concept of micro-credentials] goes anywhere it’s like, just focus on quality. The product will sell itself, don’t push out garbage.”

4.3.1 Authentic Assessment

Both employer and earner research participants comment on the importance of learner assessment by a credible authority as central to a micro-credential’s value. Some digital icons (badges) offered by providers such as LinkedIn Learning can be earned through participation only rather than the successful skill or knowledge demonstration required of a micro-credential. To all the research participants, it is a critical distinction between unassessed digital icons and micro-credentials that learners are evaluated by impartial and credible workplace experts. Earner research participant B9 says:

I would say [the micro-credential taken] was more relevant to the workplace [than other courses], because part of the course was also undertaking a project - a real world project, with real companies. So, it was very relevant, because we had the opportunity to showcase what we had learned as though we were working in real time....I just started applying for jobs, and I have interviews already lined up. So I would say very, very helpful [in the job search].

Earner research participant B6 says that the AI driven simulation incorporated into their micro-credential was understood as accurate reflections of skills needed in a real workplace:

The experience that I had when going through the micro-credential assessment, I think that it was a fair representation of what actually takes place when you’re a customer service representative or agent. When there are different queries, questions from the customers regarding the products that you’re trying to sell, or you’re representing the organization or company, dealing with different types of clients, whether they are giving a complaint or just really frustrated with a service or product that they have. If I remember correctly, there were several sets of questions in the interactions with the clients represented. I was able to respond to the different questions.

The integration of workplace authentic assessment is a significant value add to many employers such as Indigenous organization employer A8 who says:

I would say there’s a larger potential for [micro-credentials with workplace authentic assessment] going forward to be honest. For example, we get students that are fresh out of university, they come and work for us that have zero job skill and people who maybe don’t have a full degree are performing the job at a much higher competency level based on experience. If micro-credentials could be a mix of both on the job experience and schooling or training of some type, yeah, I can see it definitely selling past just [multi] year traditional credentials.

Likewise in the technology sector, workplace authentic assessments embedded in micro-credentials are a feature appreciated among employers. Technology manufacturer and employer research participant A3 comments that “the in-house demonstration would be the thing we



would use to evaluate [candidate job readiness], but the micro-credential could speed them up to get there.”

Similarly, another employer in technology, employer research participant A10 says that in a tight labour market, a micro-credential that directly reflects workplace needs can sometimes be a substitute for some level of experience:

We got three in the top of the pile and we're going to nail those top three interviews and then we're going to put probably three to five off to the side and to get into that top three pile, especially again entry level positions, having that extra push will get you that extra step of the way there. You may have made it into the top ten, but you're under five years of work experience, but I got my micro-credential, I'm giving you an interview.

Earnar research participant B15 provides an interesting perspective on how the immediacy and evaluative elements of micro-credentials may dilute their value over time:

One thing I want to mention is I think in the future micro-credentials are going to get a bit tricky because they're almost too easy to share and I'm at the point now where I feel like they're too easy to challenge and get. There's a bit of a micro-credential inflation incoming. The new LinkedIn has a featured section at the top, which actually does help now but it's going to be tricky to figure out what to display and what to showcase and how when there's so many....I actually went back to my LinkedIn. I think I deleted my two oldest certificates because I was like, honestly, these are so old. They just make me look older.



4.3.2 Trusted by Employer

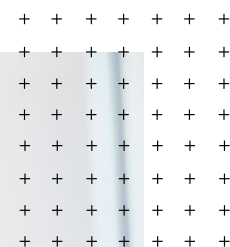
Among the clearest findings of the research is the importance of issuer familiarity and reputation. Both employers and earners strongly favour long-established and usually local higher education institutions as micro-credential issuers as compared to newer private or commercial providers of similar credentials.

Earnar research participant B21 expresses a view typical of those seeking to engage with micro-credential offerings:

I graduated from [educational institution] back in the day, so I know them, and I take that seriously. I trust that they're important...that means something to me more than some place that maybe could teach the information that I want, but it's like oh I found this company on Instagram and they're offering a six-week course, I think I'll take it, that kind of thing. The issuer is important.

Employers express similar affinity and trust for well-known higher education institutions as providers of micro-credentials. Employer research participant A29 indicates that established higher education providers have an advantage in terms of implicit trust when considering credentials:

I'd like to know that they're coming from either a trusted organization or attached to something known. Because if I heard—you just said [Coursera]—I don't know what that is. Unless it means something to me, my gut goes, “did he buy this online?” Am I going to take that extra effort to go and research it, or am I going to ignore it? Or, am I going to be suspicious? Why would I look at this guy, when I have five others over here that aren't weird?



One of the potential issues employers identify in evaluating both issuing institutions and micro-credentials in general is their emerging nature and still developing governance and quality assurance. Employer research participant A19 notes the value of a governance structure to provide quality assurance for micro-credential offerings:

And I this is where it gets complicated. If the micro credential is coming from one of these post secondary institutions, that's easy. I trust them...I trust them a lot more than a commercial aspect like [private provider] or others. If they're allowed to govern and say this is a micro credential on their own, that's the challenge. There has to be some government that is going to determine the criteria, and the program has to meet that criteria.

Despite the general preference and trust for established post-secondary institutions as micro-credential providers, some employers are open to alternative or commercial providers. This is the case for a few employers who had themselves engaged in alternative micro-credential offerings describes employer research participant A28:

I take courses on Coursera and so the idea there is [it is] still better than nothing because at least you know that in Coursera it keeps testing you along the way to make sure you're paying attention right and then you have to finish for you to get it but was it—you sat through the course or was it your really smart friend that did it for you? No idea, right. So, you know, I'll give it some, first is someone who says I read the book but if its I did Coursera, OK, I'll give you a little bit higher. But if you say I've got a credential from [large polytechnic], I would say a recognized post secondary education institution, that's going to rank the highest.



Another case where employers are open to micro-credentials from providers outside of post-secondary education is the technology sector, where established systems vendors have a history of providing micro-credentials to certify competency with specific products. Employer research participant A10 says

They're [traditional and micro-credentials] kind of on an even playing field in my world, like the Cisco credentials, the vendor specific ones, if we're hunting for somebody, like [my company], we're a Cisco facility inherently so if you have that Cisco credential of which a lot of people that's where they gravitate, we will definitely take that under higher consideration than say Arista, right? But if you had a certain level of certification through Arista, we'd see those on an even playing field.

Finally, while employers have a high degree of trust for established post-secondary institutions, this trust is not absolute. Many employers indicated that regardless of the credentials held by job applicants, related work experience and independent verification of competency remain important components of the hiring and onboarding process. Employer research participant A14 states:

I guess the biggest difference or the biggest opposition, I would say, to us using credentials as any kind of a barometer is that if you can pass a micro-credential strictly from knowing something or being able to study it, then that's just the baseline expectation. What we're looking for is experience, which would bring on knowledge that isn't obtainable through just studying or reading or watching. Experience to me would definitely be the more important element of a person's experience or a person's credentials rather than any kind of a credential.



It's helpful to know that they have, let's say even this advanced micro-credential, but it can still be obtained through study, so it's not indicative of the experience and so somebody comes in and says, hey, I have this credential from Salesforce and then somebody comes in and says I don't have any credentials, but here's my experience, we will definitely value experience over the credential.

4.3.3 Accepted by Regulatory or Professional Bodies

Research participants demonstrate substantial confidence in the credentials offered by trusted and familiar academic institutions. However, another higher level of confidence is established when a micro-credential is also recognized by regulatory or professional bodies. These bodies establish and enforce education requirements that are required for acceptance into occupation or profession. In addition to entrance requirements, ongoing educational requirements, in the form of CPD hours, may also be necessary keep up with the changing requirements of the occupation or profession. In addition, many vendors provide micro-credentials to qualify people to support operation, maintenance, and repair of their products. While these vendor micro-credentials are often product specific they are usually recognized sector-wide, providing the employer is using the vendor's products. Microsoft and AWS are good examples of product brands that offer micro-credentials affiliated with their products.

Some earner research participants like B7 are somewhat skeptical of education institutions micro-credentials when compared to sector wide application of a vendor's micro-credential:

...I don't think that individual post secondary institutions have nearly as much clout with their own micro-credentials that they create even if they're based on someone else's, as opposed to if they're direct copies and licensed to basically deliver something from someone else like Microsoft.

Similarly, employer research participant A21 says that there is much more familiarity and confidence in micro-credentials from professional associations as opposed to unfamiliar educational institutions:

I don't know really what is required to be able to start saying that you have a micro-credential for a course. I don't know if there's much of a structure behind that or if anyone can create a course through some institute and obviously give out a micro-credential, so got to take it with a grain of salt versus a professional designation or whatever where there's a lot more to it, right?

Many employer and earner research participants note that micro-credentials certified by an academic and professional or vendor organization would serve to substantially increase the recognized value of any micro-credential. Some employer research participants note that in certain occupations like 'mandatory' trades that require apprenticeship certification to legally practice, regulatory approval of education and training courses is a defining point for their value:

We have to meet a certain standard. So, unless it's recognized by the government as acceptable curriculum and credentials, we wouldn't be able to use them in Alberta.

We can't recognize them, right? Where BC and Alberta, we can, or, sorry, BC and Saskatchewan, we can probably utilize that a little bit more....I don't know how your micro credentials would link to that but unless government is on board with them and says we can do that, then we would probably do it, but otherwise we still got to follow the government standard.

Some employer research participants suggest that if current apprenticeship annual institutional training periods could be modularized in a micro-credential format, training would be far more accessible—especially for apprentices in rural and remote locations. Employer research participant A1 says:

We're a really big employer so we can rig it so that we can have people away on a regular basis and we still have people to cover where a lot of this medium smaller businesses really can't afford to have people away for that eight weeks at a time, especially four years in a row. So, it makes it really challenging for them to support full apprenticeships.

However, employer research participant A29 reinforces the point that regulatory recognition is vital for any apprenticeship micro-credential by saying, “I wouldn’t hire based on a micro-credential. You have to be a journeyman electrician.”

Some research participants prefer micro-credentials from trusted education institutions to many other micro-credential providers that may have unclear standards or learner evaluation process says employer research participant A17:

I would take a micro-credential from an educational institution over anything that you get on the internet from LinkedIn or something like that, even if you did it through an association or something, I wouldn't necessarily take that. I would rather somebody got some from [an education institution] than even a professional [association] but [an education institution and that kind of crossover sometimes. If I saw [an education institution] over that I would take the actual trade school over the professional association.

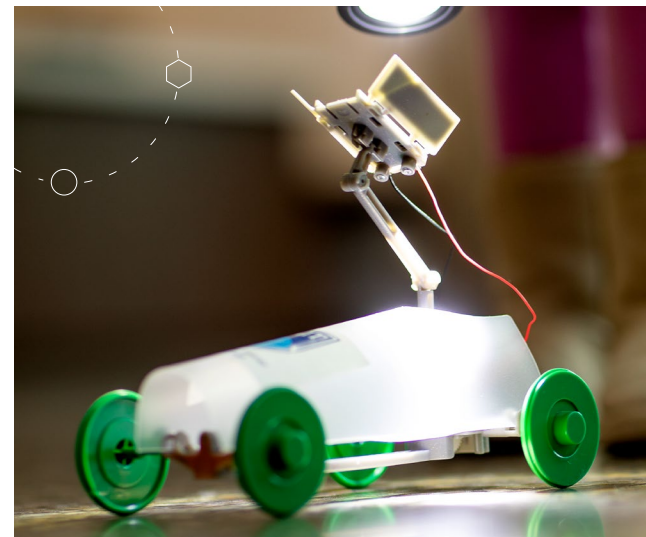
4.3.4 Employers and Earners Creating Credentials a la Carte

A potential niche application of micro-credentials is described by several respondents—both employers and earners—who comment on the value of such alternative credentials in emerging fields or where no other more foundational credential is available. In these cases, micro-credentials are viewed as a way of obtaining career relevant training and skills recognition. This approach also allows employers to build employee development plans out of available micro-credentials as they offer short, flexible, and focused training options to accommodate both time and budget constraints.

Earners research participant B4 describes how they were able to take advantage of the short-form nature of micro-credentials to build relevant training despite budget restrictions:

I'm trying to think back to what other ones I researched, one of the nice things about this one is that because it is broken down into smaller segments, it's something that, if you're in my situation where you have an employer that has a certain amount of budget that you can use, you can break it up into as many years or units as you might need to.

One issue employers express is the potential for micro-credentials in niche areas is to establish industry standardization and perhaps quality control for such programs. This may present an opportunity for either post-secondary institutions or industry associations to play a role in delivery or perhaps as an accrediting and alignment body for emerging training needs in niche areas, as per employer research participant A31:



I think the concept has a lot of potential. So, definitely something that whenever we get into that supplemental training, we're either going to vendors for something specific or we're creating stuff in house so, if there is a way for us to make that more standard across industry and have access to institutions to do it, that would be of value. Again, the challenge of course, I can see is around all of us being aligned on what it is that we want.

This issue further signals the opportunity for post-secondary institutions to work closely with industry partners in the development and delivery of targeted training opportunities, as indicated by employer research participant A10:

Something else that I've been working on—or not working on but involved with—is I'm going over reviewing the micro-credentials that are being proposed for the broadcast industry out of [education institution] right now. Those have been passed down through our company because we're one of the group of companies that's investing in that and I'm very interested in getting people those micro-credentials because within our industry, because the [education institute] broadcast program has gone away, having that stamp that somebody has gone and taken that level of education above and beyond like a [specific credential] is huge for us because it means that they not only have an interest in but also have a baseline knowledge of the systems that we're actually operating in because we're such a specialized industry. Having that extra tidbit of information is huge, and I actually have a couple of guys on my team that once that program comes to fruition, we will be putting them through that micro-credentialing program to get them that extra level of education, so I'm a huge proponent of it and I see a lot of value in it.



4.3.5 Employers Recognizing Micro-Credentials in HR Systems

Limited support is found for the idea that employers implement formal recognition for micro-credentials with HR hiring or candidate review systems. While many respondents indicate that any additional training is looked on as positive and likely increases the chances of being interviewed and even hired, most HR systems remain aligned with more traditional and foundational credentials. For example, employer research participant A35 stating that:

The micro credentials will help [interview selection] to an extent but they're not going to guarantee you over someone without micro-credentials, I'd say....They may get you to the top of the list, but you're still going to very likely be competing with someone without them at the interview stage.

Only one respondent indicates that a formal system exists for recognition of micro-credentials and other supplemental credentials, with employer research participant A30 indicating:

We value them very, very highly. If somebody has a micro-credential, right away we know it's recognized. That's a big meritable [sic] factor. We have a point system and then if experienced leaders, we have leadership experience points. That's one thing that might be a beneficial micro-credential, that could be an extra five points. English writing skills would be an extra five points, kind of thing. We look at leadership, writing, oil & gas any maybe a background – if they have a micro credential related to anything technical with the job, that would be valuable too.

One specific issue emerging from this line of inquiry is the challenge of existing formal union, collective agreement, trade association, or similar definitions of required credentials in many industries, employer research participant A31 articulates:

Because we are very much tied to, so within our competency systems, we're very much linked to that certification of the trade and it's right now, it's an enabler or it's an eliminator. Because if I need that trade certificate, it's hard for me to get someone basic skills without having to send them to the full four years of apprenticeship.

4.4 Digital Icon and Metadata

While the value assessments of a digital badge are mixed, both employer and earner research participants tend to view the digital icon as potentially an interesting feature, but currently not especially influential. While most are aware of the digital icons awarded to micro-credential earners, many were unclear about exactly how a digital badge is posted in LinkedIn or other sites and had not yet done so. Earner research participant B22 comments:

There was a digital badge but that makes me think I don't where that sits. Yes, they talked about that...But I honestly don't know. I know they've communicated that, but I've never gone out to look for it, to see where it sits.

Many earner research participants talk of the digital icon or 'badge' in hypothetical terms. Most are eager to demonstrate the icon on social media but are indifferent to completing the technical requirements to publish on their social media or the impact it may have on employers and colleagues. Earner research participant B6 says, 'As far as showing off the micro-credential, I know it exists somewhere, I think it's linked to LinkedIn, which I don't use much at all so I'm not sure if I'll be doing anything with it.' Demonstrating a minority view, earner research participant B17 says that they receive many positive remarks about the digital icon on their social media feeds:

Once I created [the digital icon], people actually recognized it and commented on it and it gave me reassurance that I'm actually learning something that's applicable to the way we are working in the future. Then it actually made me go back and start looking into other people and a lot of people are doing like learning how to work in Agile. And it is the way of where organizations are moving towards.

Among employer research participants there is a very low awareness of micro-credential digital icons. Among the very few that have active views, employer research participant A34 notes:

It's virtually almost gamifying your credentials, that you can click on something. There's nothing more appealing in my humble opinion, and you know, maybe I'm different that way, but nothing more appealing being able to click on that credential and see that course, what that program entailed, and it gives you the full scope. That's exciting.



Interestingly, many of the employer and earner research participants demonstrate misgivings about displaying too many digital icons. There are worries that micro-credentials may soon become outdated or inconsistent with the employment opportunity being sought. If an earner has a large number of micro-credentials in a single area, it raises a question among employers as to why the earner did not simply undertake a longer traditional credential. Earner research participant B7 reflects the misgiving that may be felt by demonstrating a large number of micro-credentials, 'I think the larger the volume gets, the less attractive it becomes to me because anytime I see high quantity, I think low quality'.

Both earner and employer research participants display a very low level of awareness of the potential to embed metadata about the micro-credential within the icon on a digital platform like LinkedIn. Metadata typically

available includes more information on the learning outcomes and/or assessment methods. When informed of how such a system functions (i.e., by clicking on an icon displayed online) many employer research participants express a positive view and recognize the opportunity to gain further insight into candidates' suitability for a specific role. Employer research participant A3 says:

If I can look into the micro credential, look it up and find out exactly what was covered, [it] would be very helpful. Just seeing a title on a resume is great, but I need to know what exactly did they learn and what sort of things were covered?

Likewise, earner research participant B18 agrees that metadata embedded in a micro-credential effectively clarify and substantiate the claims made by the digital icon.

I really like that idea because then you can tie it back to an authenticated issuer. I can't see a whole lot wrong with it. Say I hire a welder, I can look for the consistency of your weld. I can look for the tightness and the neatness of it, because you can do a really sloppy weld, or you can do a really tight weld that has no gaps and then it's right there. I can see efficiency....Hey, I like the idea.

While the potential of such detailed metadata is recognized, these responses should be considered in light of the fact that respondents also report mostly unquestioning trust for credentials offered by recognized institutions. It remains unclear whether employers would take the time necessary to review detailed metadata associated with a micro-credential.

4.5 Conclusion

Despite being available now for over ten years, a relatively low level of awareness of micro-credentials is pervasive among most earner and employer research participants, save those in the technology sector. However, both employer and earner research participants do validate a common core definition of a micro-credential. First, a micro-credential is short in duration and highly focused. Second, a micro-credential is workplace authentic. Topics covered are directly relevant to actual workplace requirements and expectations. Third, a digital icon is awarded upon successful completion of the micro-credential requirements.

There is little agreement among the research participants on other recently proposed micro-credential characteristics. For example, both earner and employer research participants understand micro-credentials through instructional course hours in a traditional format while a 'competency-based' approach that is independent from assigned instructional hours is not understood nor particularly valued. While research participants perceive 'stackability' (the articulation of micro-credentials comprising a larger credential) as potentially having utility but not a firm micro-credential requirement.

The data clearly shows that employers prefer, when possible, to identify qualified candidates using trusted traditional credentials. Micro-credentials are used more often when labour market demand significantly exceeds supply of relevant and trusted traditional credentials. With emerging occupations, traditional credentials may not yet be established, or the scope of demand may exceed what traditional credential issuers may be able to supply. In cases like these, the research demonstrates employers are far more willing to accept micro-credentials as indicators of likely job success. Conversely, earners that are likely to benefit most from a micro-credential are





those that have related academic or work experience that can be leveraged by their completion of a related, and brief, micro-credential. Earners with related but unfamiliar academic and work experience such as newcomers are able to maximize the benefits of micro-credentials. Also, earners seeking to ‘pivot’ to an occupation or sector related to their academic or work history also tend to find the greatest satisfaction from taking a related micro-credential. In labour markets with very high demand for relatively new occupations, findings indicate that even an introductory micro-credential can be an advantage in a job search.

Micro-credential issuer credibility is a crucial concern for both employer and earner research participants. Familiarity and trust in the issuing body is what drives the value of micro-credentials. The more micro-credentials are connected to recognized sector-wide standards, the greater their value. Meeting regulator or legal requirements such as apprenticeship certification, professional designation obligations for CPD hours and links to recognized vendor certifications such as Microsoft and AWS in the technology sector enhance micro-credential credibility with employers and demand from earners. Employer research participants also agree that a greater awareness of metadata available through online micro-credential digital icons might increase their credibility and adoption rates with employers seeking employees with skills in high demand areas - though few have actually made use of such information.

5.0 Conclusions

The study identifies that while there is a general low level of awareness of micro-credentials among employer and earner research participants, there is broad agreement on three defining characteristics. First, micro-credentials take a short time to complete compared to traditional credentials, and like traditional credentials, micro-credentials are generally understood in terms of instructional hours. Second, micro-credentials are valued in the workplace based on the understanding that earners are evaluated in a way that is workplace authentic, not abstract or theoretical but with a clear practical application. Third, micro-credential earners are provided with a digital icon that can be displayed on personal social media platforms like LinkedIn. Other optional criteria identified by previous studies such as a 'stackability' and particularly competency-based assessment as an alternative to traditional instruction, are not well understood nor appreciated by either employer or earner research participants. Overall, the optional criteria served to obscure much more than clarify micro-credentials value proposition to the employer and earner research participants. A competency-based micro-credential without defined instructional hours was difficult to conceptualize and value relative to other credentials. Similarly, multiple 'stacked' micro-credentials tend to conceal a distinction from traditional credentials.

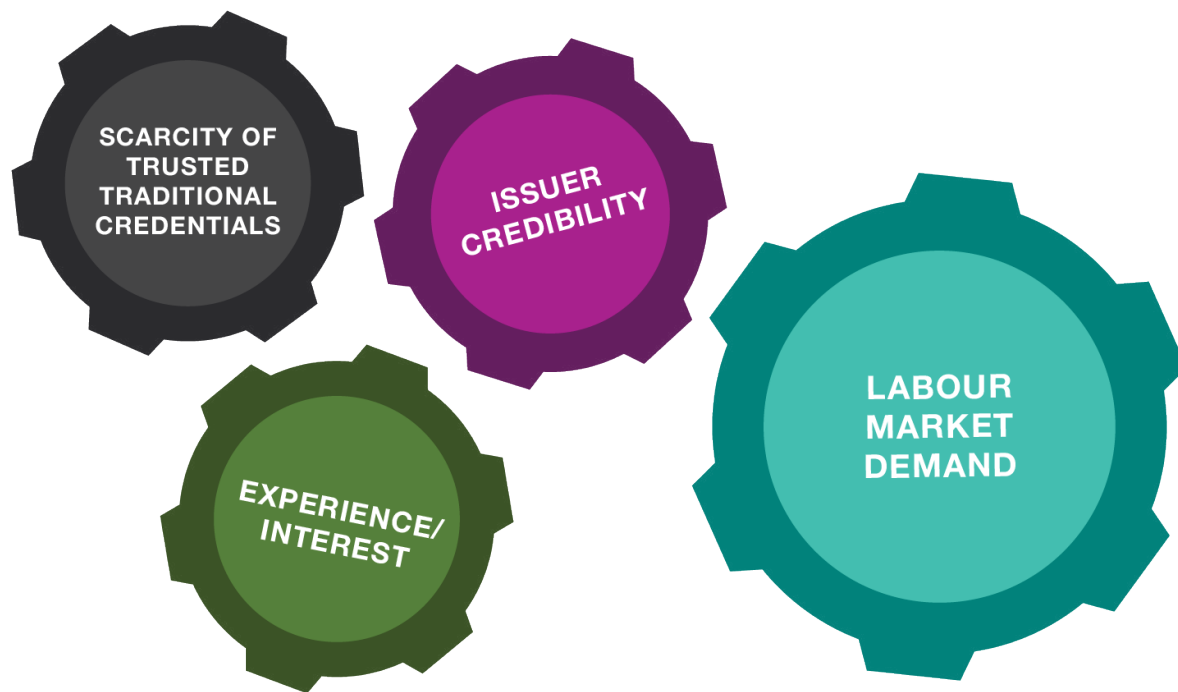


FIGURE 1
Micro-Credential Conceptual Framework
Demand > Supply of Trusted Credentials

In terms of a conceptual framework for how employers and earners think about micro-credentials, as per Figure 1: Micro-Credential Conceptual Framework, labour market demand together with the relative scarcity of relevant and trusted traditional credentials drives overall demand for micro-credentials. Under these conditions, issuer credibility influences earner and employer adoption of micro-credentials. Earners with significant experience and/or interest in the subject area tend to benefit most from related micro-credentials. With emerging occupations, it takes time for trusted new traditional credentials to be developed and scaled to meet demand. In the intervening period, employers are far more willing to accept micro-credentials as a valid indicator of either job suitability and/or worthiness of further on-the-job training. From an earner perspective, micro-credentials represent far more potential value for those with work or academic experience that is relatively difficult to validate - particularly international experience. A related micro-credential from a trusted issuing body serves to validate the relevance of work or education experience in unfamiliar contexts. Similarly, micro-credentials serve the same purpose and verify the experience applicability for those earners 'pivoting' to related higher demand occupations or sectors. Furthermore, in emerging occupations and sectors, employers demonstrate an eagerness to hire those with even an introductory micro-credential as evidence of their interest and affinity for innovation. Although among employers and earners while there is a relatively low level of recognition of digital icons associated with micro-credentials, there is very high interest in potential for further exploring the metadata that may be attached once they are made aware. Employers recognize considerable potential value in knowing more about how and when earners are evaluated and how it is relevant to needs in the workplace. The greater use of micro-credential metadata would increase awareness and utility – serving to enhance adoption within employer hiring and promotion processes



Relating to the five specific research questions for employers, the study concludes the following:

1. Do employers and employer organizations trust that micro-credentials are a more reliable indicator of a skill and a predictor of success than traditional credentials or other assessment methods such as interviews? Under what conditions and why?

Employers overwhelmingly depend upon relevant trusted traditional credentials and work experience to determine those qualified for a specific job. However, when labour market demand exceeds supply of qualified candidates, employers are more likely to accept micro-credentials as a proxy for determining the most qualified candidates. Regardless of a candidate's academic or work experience, employers do still verify for themselves (largely through interviews) shortlisted candidates' background and competency related to specific job functions.

2. Do employers place any more or less value on micro-credentials as a reflection of success in hiring or promoting decisions compared to traditional credentials?

Employers overwhelmingly rely upon trusted traditional credentials and relevant work experience as the top valid indicators of potential success on the job. Relative to trusted traditional credentials, trusted micro-credentials are accepted by employers most often when labour market demand of an occupation exceeds supply. An exception is seen in the technology sector where vendor micro-credentials have a longer standing and are more often recognized as a requirement for specific jobs.

3. Do employers consider micro-credentials as a potential replacement of traditional credentials in predicting workplace success?

In times when labour market demand exceeds supply of trusted traditional credentials or work relevant experience, employers will consider trusted and relevant micro-credentials as part of the hiring or promotion decision-making process. However, micro-credentials are most often not considered a replacement for trusted traditional credentials but rather a necessary substitute or especially an addition to such credentials. Again, an exception is made for the technology sector where there is greater acceptance of vendor micro-credentials as a requirement for specific jobs.

4. Do employers use micro-credentials for employee assessment? How and why?

There is very little evidence of employers using micro-credentials to assess the capacity of their current employees. However, it is noted by employers and earners that micro-credentials sometimes represent an interest and appreciation of an important knowledge or skill area and an employee's initiative to become more knowledgeable and thus relevant to their employer needs.

5. Do employers consider micro-credentials a way to promote inclusivity for those without traditional credentials?

Many employers seeking to diversify their workforce are willing to recognize trusted micro-credentials as a method to qualify more diverse candidates that may face barriers to trusted traditional credentials. Impediments to greater micro-credential recognition such as collective agreement compliance are also noted.

The study concludes the following relating to the three specific research questions for earners:

1. Do different types of micro-credential holders and potential holders view micro-credentials as having more or less value in the employment market for demonstrating success? If so, how and why?

Earners who benefit most from micro-credentials leverage related academic or work experience in areas where labour market demand exceeds the supply of candidates with trusted traditional academic credentials or related work



experience. Earners also recognize that employers must know and trust the micro-credential issuing body. The perceived validity of the micro-credential evaluation has a major impact on its acceptance with employers. For example, the demonstration of the knowledge or skill to a trusted evaluator has value while review of learning materials without an evaluation has negligible value.

2. Do micro-credential holders and potential holders consider micro-credentials as a replacement or augmentation of traditional credentials to demonstrate success?

Earners do not consider micro-credentials a substitute for trusted traditional credentials but rather an augmentation in most cases. However, earners recognize the potential for micro-credentials to validate unfamiliar or potentially related academic or work experience. Earners also are aware that a micro-credential in an emerging area of high labour market demand can provide a significant advantage when no trusted traditional credentials have yet been established.

3. Do micro-credential holders and potential holders value micro-credentials awarded by employers?

The study has a relatively small sub-sample size of earners that had completed a micro-credential awarded by their current employer. Nevertheless, the relevant sub-sample earners appreciate the accessibility of the micro-credentials offered and consider the skills and knowledge achieved as meaningful. However, there is no evidence that a micro-credential offered by the employer was considered any more significant than any other relevant and trusted micro-credential.

Based upon the conceptual framework developed during this study, the following are recommended focus areas for micro-credential future development:

1. Introductory to advanced micro-credentials in emerging occupations where demand vastly exceeds supply of traditional credentials. These may serve as initial building blocks for traditional credential offerings as emerging sectors mature. A series of non-credit micro-credential offerings may be an effective strategy, to offer programming more rapidly (on an interim basis) in emerging occupations until a credit program can be approved and scaled.
2. Micro-credentials at a mid to advanced level targeting potential earners that are seeking to validate an unfamiliar (e.g., international) academic and/or work history in occupations where demand exceeds supply of traditional credentials.
3. Micro-credentials at a mid to advanced level targeting potential earners that are seeking to validate their knowledge and skills after a significant absence from an occupation where demand exceeds supply of traditional credentials.





4. Micro-credentials at a mid to advanced level targeting potential earners that are seeking to demonstrate the transferability of current knowledge and skills to a related occupation or sector where demand exceeds supply of traditional credentials.
5. Micro-credentials at a mid to advanced level that are recognized by either regulatory bodies as a requirement for entry to an occupation or by professional bodies as meeting ongoing CPD requirements.

The study's conceptual framework also identifies significant opportunities to build awareness of micro-credentials among both employers and potential earners in two specific ways. First, more focused value proposition marketing to employers and potential earners will build awareness and clearly differentiate micro-credentials from traditional credentials in the education and skills training marketplace. Micro-credentials should not be considered a replacement for traditional credentials but, as noted above, a tool to leverage earners' interest, aptitude, academic and/or work history in occupations where current demand exceeds supply of trusted traditional credentials. Second, increasing the awareness of metadata embedded in digital icons has great potential to enhance adoption rates of micro-credentials. Metadata relating to how and when earners are evaluated addresses many of the primary reservations of employers when considering candidates with micro-credentials.

Finally, the study's focus is on the Canadian province of Alberta. More research is recommended in other jurisdictions in Canada and abroad in order to develop a deeper understanding of micro-credentials and their most effective role in national and international labour markets.

References

- Abramovich, S., Schunn, C., & Higashi, R. M. (2013). Are badges useful in education? It depends upon the type of badge and expertise of learner. *Educational Technology*, 61, 217-232.
- Berry, B. (2017). Micro-credentials: the badges of professional growth. *Education Digest*, 82(9), 21.
- Brown, M., Mhichil, M. N. G., Beirne, E., & Mac Lochlainn, C. (2021). The Global Micro-Credential Landscape: Charting a New Credential Ecology for Lifelong Learning. *Journal of learning for development*, 8(2), 228-254.
- Carey, K. L., & Stefaniak, J. E. (2018). An exploration of the utility of digital badging in higher education settings. *Educational Technology Research and Development*, 1-19. <https://doi.org/10.1007/s11423-018-9602-1>
- Charmaz, K. (2014). *Constructing grounded theory: A practical guide through qualitative analysis* (2nd ed.). SAGE.
- Charmaz, K., Thornburg, R., & Keane, E. (2018). Evolving Grounded Theory and Social Justice Inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (5th ed., pp. 411-443). SAGE.
- Clements, K., West, R. E., & Hunsaker, E. (2020). Getting Started with Open Badges and Open Microcredentials. *International Review of Research in Open and Distributed Learning*, 21(1).
- Colleges and Institutes Canada. (2021). *The Status of Microcredentials in Canadian Colleges and Institutes: Environmental Scan Report*. <https://collegesinstitutes.sharepoint.com/extcollab/Shared%20Documents/Forms/AllItems.aspx?id=%2Fextcollab%2FShared%20Documents%2FWebSite%20%28Comms%20use%20only%29%2F04%2D2021%2FCICan%5FReport%5FMicrocredentials%5FEng%2Epdf&parent=%2Fextcollab%2FShared%20Documents%2FWebSite%20%28Comms%20use%20only%29%2F04%2D2021&p=true&ga=1>
- Cooney, A. (2011). Rigour and grounded theory. *Nurse researcher*, 18, 17-22. <https://doi.org/10.7748/nr2011.07.18.4.17.c8631>
- Copenhaver, K., & Pritchard, L. (2017). Digital badges for staff training: Motivate employees to learn with micro-credentials. *Journal of electronic resources librarianship*, 29(4), 245-254. <https://doi.org/10.1080/1941126X.2017.1378543>
- Dukas, J. (2020). *Micro-Credentials: Trends in Credit Transfer and Credentialing*. B. C. o. A. a. T. (BCCAT).
- Gooch, E., Chaktsiris, M., Jae, K., Patterson, L., Suleman, S., Crawford Urban, M., & Luke, R. (2022). *The Future is Micro: Digital Learning and Micro-credentials for Education, Retraining and Lifelong Learning*. eCampus Ontario. Retrieved October 30, 2022 from <https://www.ecampusontario.ca/wp-content/uploads/2022/03/TheFutureisMicro-final-ENG.pdf>
- Hall-Ellis, S. D. (2016). Stackable micro-credentials - a framework for the future. *The Bottom Line*, 29(4), 233-236.
- Harvey, D. (2018). Make Way for Micro-credentials. *HR Reporter*, 31(3), 19-19. http://ucalgary.summon.serialssolutions.com/2.0.0/link/0/eLvHcXMwY2AwNtlz0EUrEyxTQXV1WIKKWWKiZSqw2gXVw2bmQYkGJiZJFuBNr8i3AznCtsZAox-tWSoKL7pT8ZNCouT5oCs3lAtict7AvKNQF3SMFmm-FXqrBzMAKavuDFvmZh0fCy2ZgcwA8e2kBzOZGRhYRGCUwuFpxE2CArVGCLSeBX70BWZqEdmYjRU4VZJAE1kspqQpIA3UKjpB0l8TAIJonzMABWwUvwiDn6-jtqhDuGKkA7CUqAK-MqyF_XOCjVxdUvxNPRJ1iUQcnNNcTZQxfmjnjo3EM8wg3GYgwsef5qRIMCqnJhZJpimWyQbGycCGFShcLC2TLEC-7Z5NTk83MJBmk8RgkhVdWmoEL2LqwgCzYkmFgKSkqTZWFH7BbKQeOGSBp4RYIABY7otU
- Henrich, J. (2016). Competency-based education: The employers' perspective of higher education. *The Journal of Competency Based Education*, 1(3), 122-129. <https://doi.org/10.1002/cbe2.1023>

- Jabareen, Y. (2009). Building a Conceptual Framework: Philosophy, Definitions, and Procedure. *International Journal of Qualitative Methods*, 8(4), 49-62.
- Jeantet, A. (2018). *Exploring the Development of Micro-Credentials for Preparation for Job Attainment: An Innovation Study* ProQuest Dissertations Publishing].
- Jirgensons, M., & Kapenieks, J. (2018). Blockchain and the Future of Digital Learning Credential Assessment and Management. *Journal of Teacher Education for Sustainability*, 20(1), 145-156. <https://doi.org/10.2478/jtes-2018-0009>
- Lockley, A., Derryberry, A., & West, D. (2016). Drivers, affordances and challenges of digital badges. In D. Ifenthaler, N. Bellin-Mularski, & D. K. Mah (Eds.), *Foundation of digital badges and micro-credentials* (pp. 55-70). Springer.
- Maina, M. F., Guàrdia Ortiz, L., Mancini, F., & Martinez Melo, M. (2022). A micro-credentialing methodology for improved recognition of HE employability skills. *International Journal of Educational Technology in Higher Education*, 19(1), 10-10. <https://doi.org/10.1186/s41239-021-00315-5>
- Morrow, S. (2005). Quality and Trustworthiness in Qualitative Research in Counseling Psychology. *Journal of Counseling Psychology*, 52, 250-260. <https://doi.org/10.1037/0022-0167.52.2.250>
- Oliver, B. (2019). Making micro-credentials work for learners, employers and providers. <http://dteach.deakin.edu.au/wp-content/uploads/sites/103/2019/08/Making-micro-credentials-work-Oliver-Deakin-2019-full-report.pdf>
- Oliver, B. (2022). *Towards a common definition of micro-credentials*. <https://unesdoc.unesco.org/ark:/48223/pf0000381668>
- Pichette, J., Rizk, S., & Han, J. (2021). *Making Sense of Microcredentials*. https://heqco.ca/wp-content/uploads/2021/05/Formatted_Microcredentials_FINAL1.pdf
- Pichette, J., & Watkins, E. (2018). *Competency-based education; Driving the skills measurement agenda*. https://heqco.ca/wp-content/uploads/2020/02/Formatted_CBE-Paper_REVISED.pdf
- Randall, D., Harrison, J., & West, R. (2013). Giving Credit Where Credit Is Due: Designing Open Badges for a Technology Integration Course. *TECHTRENDS TECH TRENDS*, 57(6), 88-95. <https://doi.org/10.1007/s11528-013-0706-5>
- Santos, J. L., Charleer, S., G., P., Klerkx, J., Duval, E., & Verbert, K. (2013). Evaluating the Use of Open Badges in and Open Learning Environment. In D. Hernandez-Leo, T. Ley, R. Klamma, & A. Harrer (Eds.), *scaling up Learning for Sustained Impact*. Springer. https://doi.org/https://doi.org/10.1007/978-3-642-40814-4_25
- Shireman, S. (2022). *New Coursera survey shows high demand for idustry microcredentials from students and employers in tight labor market*. Retrieved January 27, 2023 from <https://blog.coursera.org/from-higher-education-to-employment/>
- SHRM Foundation. (2021). *The Rise of Alternative Credentials in Hiring*. Retrieved October 28, 2022 from <https://shrm.org/foundation/about/Documents/The%20Rise%20Of%20Alternative%20Credentials%20In%20Hiring.pdf>
- Statistics Canada, & ESDC Canada. (2019). Bridging the gap between skills and occupations: A concept note to identify the skills associated with NOC. *LMI Insights*, 16.
- Stern, D. (2017). Measuring Learning and Skills: Badges and Micro-credentials. In (Vol. 21, pp. 18). Alexandria: Special Libraries Association.

- The Strategic Counsel, & Associates, H. E. S. (2022). *Revisiting Microcredentials in the Canadian Marketplace*. <https://higheredstrategy.com/wp-content/uploads/2022/09/Microcredentials-Today-A-Proposal-Sep-2022-ES-Review-09.15.pdf>
- Usher, A. (2019). *Microcredentials*. Higher Education Strategy Associates. Retrieved November 3, 2022 from <https://higheredstrategy.com/microcredentials/>
- Willis III, J. E., Nunn, S. G., & Arella, J. T. (2016). Digital Badges and Micro-credentials: Historical Overview, Motivational Aspects, Issues and Challenges. In D. Ifentaler, N. Bellin-Mularski, & D. K. Mah (Eds.), *Foundations of Digital Badges and Micro-Credentials: Demonstrating and Recognizing Knowledge and Competencies* (pp. 3-23). Springer International.
- Young, D., West, R. E., & Nylin, T. A. (2019). Value of Open Microcredentials to Earners and Issuers: A Case Study of National Instruments Open Badges. *International review of research in open and distance learning*, 20(5), 104-121. <https://doi.org/10.19173/irrodl.v20i5.4345>

Appendix A: Survey

Surveys Completed

Earners: n = 222

Employers: n = 287

Employers

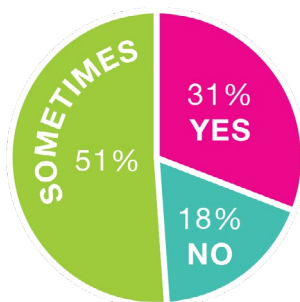
What credentials do you look for in general when assessing candidates for specific job roles?
(Select all that apply) - Selected Choice

A half (50%) of the employers look for micro-credentials along with other credentials like diplomas, certificates, degrees when assessing candidates for specific job roles.

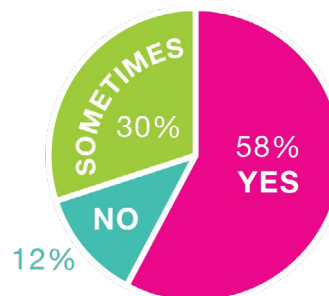
What credentials do you look for in general when assessing candidates for specific job roles?
(Select all that apply) - Other, please specify - Text



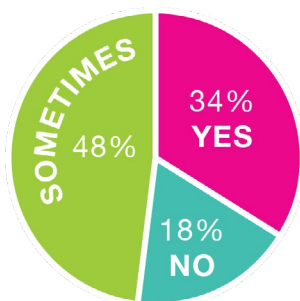
Is a relevant micro-credential(s) an important consideration when shortlisting candidates for a position?



Are candidates that lack required traditional credentials (degrees, diplomas, certificates) considered if they have the necessary experience and/or can demonstrate competence?



For hiring or promotion purposes, are relevant micro-credentials considered valid proof of competency?



Earners

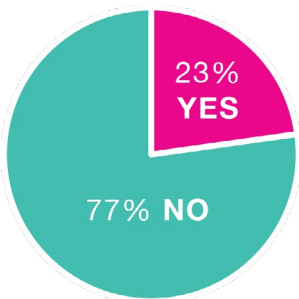
What was your primary reason for taking the micro-credential(s)?



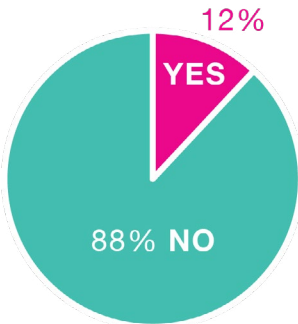
What was your primary reason for taking the micro-credential(s)?

- To stand out to potential new employers.*
- To get my existing skills recognized quickly and without having to complete a long course (or program).*
- To give me better promotion opportunities with my current employer.*
- I had a general interest in the topic/skill.*
- It had a shorter learning time than other types of training.*

Have you obtained new employment or promotion since obtaining your micro-credential(s)?



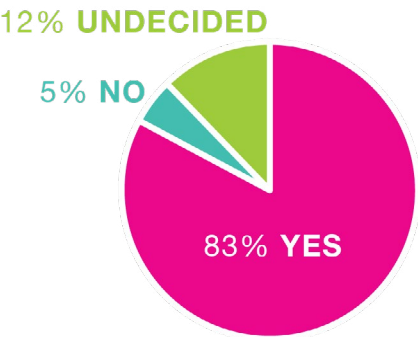
Do you think your micro-credential(s) helped you secure the new employment or promotion?



How would you characterize your micro-credential learning experience compared to other training types/credentials?



Given your micro-credential experience, would you recommend it to others?



What micro-credential(s) did you obtain?



Acknowledgements

This research was prepared with financial support provided through the Future Skills Centre. NAIT is proud to serve as a research partner in the Future Skills Centre consortium. For further information about the Centre, visit the website at <https://fsc-ccf.ca/>.

The following members of NAIT's team contributed to this work: David Harvey, Russ Wilde, and Partha Roy.

We thank the numerous individuals who took the time to participate in this research as interviewees.

We wish to thank the members of the Research Ethics Board (REB) and staff members of NAIT, SAIT, Bow Valley College and Saskatchewan Polytechnic who supported and contributed to this research. We also extend our thanks to Future Skills Centre for their support and guidance throughout this research.



**Future
Skills
Centre**

Centre des
**Compétences
futures**

