

Micro-credentials Processes

Submitted by Ecctis to the IB

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Acronyms

AQF	Australian Qualifications Framework
ASPDP	After School Professional Development Program
CBMC	Credit-Bearing Micro-credential
CEU	Continuing Education Units
CIMEA	Information Centre on Academic Mobility and Equivalence (Italy)
ECIU	European Consortium of Innovative Universities
ECTS	European Credit Transfer and Accumulation System
EHEA	European Higher Education Area
ENQA	European Association for Quality Assurance in Higher Education
IMINQA	Implementation and Innovation in Quality Assurance
LLL	Lifelong Learning
MOOC	Massive Open Online Course
MSCHE	Middle States Commission on Higher Education
NCVET	National Council for Vocational Education and Training (India)
NOS	National Occupational Standards
NQF	National Qualifications Framework
NZQA	New Zealand Qualifications Authority
NZQCF	New Zealand Qualifications and Credentials Framework
OECD	Organization for Economic Cooperation and Development
OMC	Ontario Micro-Credentials
PEQAB	Postsecondary Education Quality Assessment Board
STEM	Science, Technology, Engineering, and Maths
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific, and Cultural Organization
QAA	Quality Assurance Agency (for Higher Education)
QQI	Quality and Qualifications Ireland.

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1. Executive Summary

The IB is a not-for-profit educational foundation offering four programmes across the world: the Primary Years Programme (PYP), Middle Years Programme (MYP), Diploma Programme (DP), and the Career-related Programme (CP).

To prepare IB educators to deliver IB programmes and support their overall professional development, the IB offers a variety of professional learning (PL) opportunities. As of April 2023, to complement its offering of in-person and online workshops, the IB started piloting the use of micro-credentials.

In broad terms, micro-credentials are self-directed and evidence-based forms of competency-based recognition aimed at validating educators' professional learning. At present, IB micro-credentials are programme- and subject-agnostic and focus on validating a particular capability, namely:

- Assessment literacy
- Conceptual understanding
- Understanding student well-being.

The inclusion of micro-credentials in the IB's *Learning Architecture* aims to give IB educators further agency over their learning and offers an accessible means – time- and cost-wise – for them to build and demonstrate their professional capabilities, both when preparing to deliver IB programmes and throughout their lifelong learning journeys.

Micro-credentials offer a flexible education and training pathway for individual learners to achieve specific knowledge or skills in a much shorter time frame than traditional degree programmes would allow. Their purpose lies in the provision of accessible, short-term, and targeted education and training programmes which are aligned to industry needs, and which allows holders to either access further education, or enhance their prior qualifications.

These types of awards, however, go much beyond the academy. Within the context of educator micro-credentials, the recognition of competency and professional development provide a strong undercurrent for micro-credentials to act as a vehicle that recognises and certifies knowledge, skills, and expertise acquired on-the-job. Moreover, micro-credentials also present an opportunity for teachers to advance their careers more efficiently.

The study presented below reflects the current state of the literature ([section 4](#)) in the micro-credentialing space, which demonstrates a strong focus on access to education and training, as well as recruitment and upskilling (or reskilling). Where necessary, this study is supplemented with further reflections on the use of micro-credentials for professional development and skills mapping. This aspect, then, is further explored in the issuers' section ([section 5](#)).

A wide range of literature and other publicly available information has been reviewed, including both academic literature and organisational case studies of selected issuers of micro-credentials.

Methodology

All components in this report have been framed by responses to the following Research Questions (RQs):

RQ1: What models and practices of micro-credentials are described in the literature?

- Particularly with regard to:
 - Definitions
 - Purposes
 - Accreditation and recognition types
 - Referencing and cataloguing
 - Portability and stackability types
 - Stakeholders involved (e.g. assessors, awarding bodies, quality assurance agencies, credential evaluators).

RQ2: What practices are applied by comparable issuers of micro-credentials working in the education space?

- Particularly with regard to:
 - Purposes
 - Digital platforms used
 - Assessment methods
 - Awards (e.g. badge, proof, grade, micro degree, nano degree)
 - Credits (e.g. ECTS, UK credits)
 - Stacking options (e.g. pre-stacked packages, non-coherent stacking)
 - Portability options (e.g. digital wallets)
 - Quality assurance systems
 - Inclusion in qualification frameworks (e.g. teacher education)
 - Costing and fees
 - Stakeholders involved.

Answering these questions has involved the following steps:

- **Sourcing and identifying relevant academic literature on the concept of micro-credentials in general, and educator micro-credentials more specifically.** Searches were conducted via the main academic databases using a variety and combination of key words as outlined further down.
- **Reviewing selected sources and extracting complementary and contrasting definitions of micro-credentials**, as well as the existing models of such credentialing at a micro-level, with reference to continuing professional learning and development in the educator space.
- **Identifying current and emerging trends in the literature and practice of micro-credentials**, complemented by a review of selected micro-credential issuers as case studies.

Notably, as the literature focused specifically on the differences in the conceptual understanding of micro-credentials across countries, regions, and industries, this study also reviewed, where appropriate, sources that adopt a more functional understanding of micro-credentials. Critical sources, that question the innovative nature and function of micro-credentials, were also reviewed to reflect the nuances present within this debate.

The selected issuing organisations analysed as case studies are:

- Childhood Education International
- Clark the County Educators Association
- DePaul College of Education
- Friday Institute at NC State
- Harvard Extension School
- Institute for Personalized Learning
- Nova Academy
- SUNY Buffalo State
- Teacher Career Pathways.

In all cases, research was based on publicly available information. The websites of each of the above issuers were consulted to obtain information, documentation, and materials related to their micro-credential conceptualisation and practices, including their definitions of the term, elements put forward, digital platforms used, assessment methods, quality assurance systems, awards, stacking and portability options, related costs, as well as the stakeholders involved. Information on each of these aspects was recorded in a templated spreadsheet, from which themes and trends were identified.

Key Findings

The table below provides the headline findings against each research question. More details on each component can be found below the table.

RQ1: What models and practices of micro-credentials are described in the literature?	<ul style="list-style-type: none"> • Models and practices are frequently linked to flexible and personalised learning, thereby often demonstrating the following features: <ul style="list-style-type: none"> • Unbundling • Non-degree • Credit-bearing • Stackability. • Common types of micro-credentials can support: <ul style="list-style-type: none"> • Academic entry • Labour market entry • Professional learning and development. • Approaches can be grouped as experience-focused (i.e. recognition of prior knowledge and training, frequently including expertise acquired on-the-job), or content-focused (i.e. where education and training allows access to or enhances larger degree programmes).
RQ2: What practices are applied by comparable issuers of micro-credentials working in the education space?	<ul style="list-style-type: none"> • The selected issuers each have their own contexts which shape their conceptualisation and understanding of their micro-credential offerings. • Generally speaking, all (or most) issuers view micro-credentials as: <ul style="list-style-type: none"> • Short-term • Competency-based • Self-paced • Job-embedded (or supplemental) • Leading to particular certificates or badges. • The most notable variations emerged in relation to: <ul style="list-style-type: none"> • Academic or professional focuses • Costing and other fees.

Definitions and Purposes

This report distinguishes between micro-credentials from a conceptual and functional perspective.

Conceptually, a:

- **‘Credential’** refers to the demonstrated evidence of an individual’s knowledge and expertise which makes them suitable for a particular job. Final degree certificates, university transcripts, and diploma supplements all fall within this category.
- **‘Micro-credential’** is often understood as smaller, more targeted, and more flexible [versions] of traditional credentials.¹
- **‘(Digital) Badge’** forms the visual representation of the achievement gained from a micro-credential.²

Functionally, a:

- **‘Digital credential’** (typically in the format of a **digital badge**) is issued ‘in a format that is both human and machine-readable.’³ These types of credentials, in the form of badges containing metadata, are often considered as alternatives to traditional credentials because they provide a different way of demonstrating acquired skills and knowledge.
- **‘Micro-credential’** is aimed at entry to higher or other post-school education and training, continued professional development and/or at expanding the skills achieved during a previous degree study.

Micro-credentials, then, may be:

- **Unbundled**: referring to the breaking down of wider degree programmes into separate, distinct components (typically modules) which are then offered as micro-credentials
- **Non-degree**: referring to certificate programmes below the level of a Bachelor’s, Master’s, or doctoral degree
- **Credit-bearing**: referring to the eligibility of a certificate programme for academic credit (or for professional development/certification)
- **Stackable**: referring to the fact that this academic credit may be applicable towards other certificate or wider degree programmes, each building on the knowledge and skills achieved from preceding credentials.

The review of the micro-credential practices by the selected issuers in this study revealed that key aspects of these definitions are evidenced in their provision of micro-credentials. For example, in the aim and purpose of these various offerings, issuers highlight the role of micro-credentials in supporting:

- Academic entry
- Labour market entry
- Professional learning and development.

Particularly for educator training providers, micro-credentials serve the function of providing an opportunity to either recognise existing knowledge and skills, or to upskill (reskill) and enhance prior expertise.

Types

While most, if not all, of the issuers reviewed in this study seem to agree on the general nature and purpose of micro-credentials, the way in which these short-term (micro) education and training programmes are offered differs. Outcomes associated with these micro-credentials also vary based on the specific issuing organisation.

In essence, a distinction can be made between micro-credentials based on the **type of institution** offering them:

- University-based (academic) micro-credentials, typically leading to credit transfers onto degree programmes at Bachelor's degree level and above
- Professional learning and development micro-credentials, typically leading to one or more badges which may be displayed on an individual learner's CV.

A different way of distinguishing between micro-credentials is to consider their **purpose**:

- Experience-focused: assessing previous experience and recognising post-education development, demonstrating enhanced education and training through professional development and learning
- Content-focused: education and training content developed separately or unbundled as part of a micro-credential programme, supporting academic entry or enhancing a prior degree.

Assessment methods

Particularly for educator training providers, the assessment methods associated with micro-credentials typically allow professionals to (re)engage with developments in their field, critically reflect on their own knowledge and teaching practice, and take ownership of their career progression journeys through the following aims:

- Goal setting
- Evidence collection
- Reflective writing
- Feedback (peer review).

Unpacking this further, a self-reflective assessment of educator micro-credentials typically involves the evaluation of a professional teacher's ability to critically examine their own teaching practice, identify areas for professional learning and development, as well as pursuing strategies for growth (here: via micro-credentials). This can include:

- Documentation and portfolio creation: focusing on self-assessment of one's own teaching practice in context
- Peer observation and feedback: demonstrating teaching practice to small groups of peer teachers, who provide feedback and suggestions
- Reflective journals: to engage in ongoing self-reflection and growth, which may be further assessed
- Structured reflection: via further group discussions, guided prompts or in the form of workshops.

In the case of academic micro-credentials, the assessment methods adopted typically mirror the more traditional assessment methods encountered in degree programmes, such as external examinations and coursework.

Platforms and websites

Micro-credentials issuing organisations make their micro-credentials available to the public in two ways: either by hosting them on a third-party digital platform (e.g. Digital Promise, Coursera, edX, etc.) that offers micro-credentials from different issuing organisations, or by hosting them on their own websites/internal platforms.

Both options have their own advantages and disadvantages (see [section 5.5](#) for more information).

Inclusion in NQFs

Generally, inclusion of micro-credentials in National Qualification Frameworks (NQF) is still rare, though there are some notable exceptions.

The New Zealand Qualifications Authority (NZQA), a national accreditation body, for instance, has recently launched its rebranded New Zealand Qualifications and Credentials Framework (NZQCF) where micro-credentials and other education and training offerings may be pitched to particular levels of the national framework. The NZQA's micro-credential register ensures that all nationally recognised micro-credentials are listed on this external website. Australia, as well, is offering a central *Microcreds Seeker* database (see below). However, these countries are currently the exception, not the rule – in the majority of countries, there is still limited integration of micro-credentials into NQFs.

It may be anticipated that the mapping of micro-credential offerings onto particular levels of respective national qualifications frameworks will further the portability and stackability of these types of awards, across institutions, as well as across countries.

Awards, credits and stackability

The portable functionality of micro-credentials is perhaps one of their most distinguishing factors. Often, micro-credential awards are visually presented by way of a (digital) certificate or (digital) badge, which can be more easily shared (e.g. through digital portfolios or social media) than more traditional degree certificates and diplomas.

Micro-credentials are also characterised by their potential stackability. There are two ways of conceptualising these types of awards:

- Standalone units of learning
- Stackable credentials (credit-bearing / non-credit-bearing).

In other words, a micro-credential may be studied by way of one or more units of learning (i.e. modules). These micro-credentials may then be combined to form a personalised or a predetermined wider package of education and training or count as transfer credit towards larger degree programmes or professional development/accreditation.

However, not all micro-credentials are credit-bearing, particularly where professional learning and development (and its recognition) are concerned. Here, new advances in skills profiling⁴ aim to further ensure that all forms of prior learning and training may be properly recognised, as well as certified through micro-credentials.

Stakeholders involved

The micro-credential ecosystem consists of a wide range of stakeholders, including:

- Individual learners
- Education and training providers
- Companies (employers) and industry
- National accreditation agencies and other official bodies.

In this multi-actor system, accreditation agencies and other official bodies often seek to ensure that education and training organisations comply with national and regional standards. Education and training providers, together with industry, then, set the agenda in terms of what new knowledge and skills are required. Individual learners are, in turn, able to select and personalise their pursuit of (new) knowledge and skills based on this provision of micro-credentials.

However, the rapid proliferation of micro-credential offerings is also leading to a lack of coordination and consolidation in this field of short-term education and training programmes, as evidenced by the large diversity of conceptual definitions and other approaches towards micro-credentials.

Similarly, the ongoing uncertainty about micro-credentials across these different stakeholders reflects the fact that micro-credentials are still a new and upcoming space, with new directions currently being explored.

Quality assurance

Also due to their rapid proliferation, there is currently a significant disparity between regions and industries with regard to the accreditation and quality assurance of micro-credentials. Examples of countries where significant attention has been paid to the accreditation of micro-credentials, as a separate (though aligned) education and training offering distinct from traditional degree/training programmes include:

- Australia
- Ireland
- New Zealand.

Each of these three countries has a strong tradition of short-term education and training courses that are, often, pitched to a certain level of their respective national qualification frameworks. These programmes are, in other words, micro-credentials in all but name.

Such a degree of quality control is available to a lesser extent from the issuing organisations reviewed in this study. For academic issuers of micro-credentials, the quality assurance of their short-term education and training offerings is typically subsumed under the wider, university-level processes for accreditation and quality control. However, where degree programmes are unbundled and presented as separate modules (i.e. micro-credentials), the impact of such learning fragmentation on content and quality remains unclear.

The educator training providers reviewed were found to share even less information about their internal or external quality assurance processes. That said, many of the issuing organisations reviewed do offer their micro-credentials through third party digital platforms

(see below), whose own policies and criteria around issuing organisations and the micro-credentials offered can act as quality control mechanisms in themselves.

Overall, however, there is still generally limited quality assurance information in the micro-credentialing space. The, as of yet, limited inclusion of micro-credentials in national qualification frameworks, as well as the limited information made available by issuing organisations on the development of their micro-credentials, can function as barriers to the wider rollout of this innovative new education and training vehicle.

Current and New Directions

From the review of the literature and of the processes of the selected issuing organisations, the study identified the following as some of the key trends in the micro-credentialing space:

- There is an ongoing flexibilisation of traditional curricula, including the modular provision of courses as micro-credentials
- Via micro-credentials, education and training providers are able to respond more directly to industry needs and provide opportunities for re- or upskilling.

As well as a general trend leading towards the adoption of more flexible learning pathways, this study also documented a number of additional contemporary and emerging trends in the micro-credentialing space. Much more than simply replacing traditional degree programmes or qualifications, micro-credentials are leading to a wider degree of diversification in education and training that is complementary to existing degrees/qualifications.

In particular, the review of the literature and of the processes of the selected issuing organisations revealed that:

- The evolving labour market will continue the pursuit of short-term, certified learning programmes, of which micro-credentials are the mainstay
- The credit-bearing nature is one of the primary distinguishing factors of a micro-credential, particularly in how it relates to (often uncertified and/or non-credentialed) short courses
- New methods of recognising (prior) learning and competences are also being developed, with micro-credentials as the primary vehicle driving this development
- In so doing, the delivery of *certified* education and training to non-traditional learners (particularly on-the-job professionals) presents an excellent opportunity for the further development of micro-credentials
- There exists a continued need to verify an individual learner's personal details, as well as the programme studied as part of a micro-credentials. This verification is typically available via the metadata embedded within a (digital) badge or certificate, or printed as is.

Emerging areas include the:

- The adoption of skills, knowledge, and other forms of expertise through skills mapping and their formal credentialing, often leading to credit transfer onto other education and training programmes.
- Ever greater understanding of the need for accreditation and quality assurance processes which understand micro-credentials as distinct and, therefore, separate from existing degree programmes – even where those micro-credentials were originally part of that wider degree programme.

Recommendations

Following the review of recent literature on the topic, the following recommendations are made to current and prospective issuers of micro-credentials to promote their scaled adoption:

- 1) Develop a comprehensive understanding of where their own micro-credentials fit within the wider landscape
- 2) Ensure that the micro-credential offerings align with the institutional vision, as well as their compatibility with existing education and training initiatives
- 3) Establish shared taxonomies and standards to create a common language for presenting and evaluating micro-credentials within the organisation as well as among industry partners
- 4) Implement standalone certification, verification, and quality assurance mechanisms for micro-credentials, ensuring external credibility and value
- 5) Foster transparent pathways for individual learners to stack or combine different micro-credentials into larger academic, training, professional development or accreditation programmes, or seek admission to programmes developed by other issuers.
- 6) Promote the recognition and adoption of the organisation's micro-credentials by actively engaging with stakeholders, marketing their benefits, and fostering partnerships with other educational institutions, employers, and professional associations
- 7) Offer support services, such as career counselling, mentoring, and networking opportunities, to enhance the added-value of micro-credential programmes.

2. Introduction

2.1 Context and Scope

The IB is a not-for-profit educational foundation offering four programmes across the world: the Primary Years Programme (PYP), Middle Years Programme (MYP), Diploma Programme (DP), and the Career-related Programme (CP).

To prepare IB educators to deliver IB programmes and support their overall professional development, the IB offers a variety of professional learning (PL) opportunities. As of April 2023, to complement its offering of in-person and online workshops, the IB started piloting the use of micro-credentials.

In broad terms, micro-credentials are self-directed and evidence-based forms of competency-based recognition aimed at validating educators' professional learning. At present, IB micro-credentials are programme- and subject-agnostic and focus on validating a particular capability, namely:

- Assessment literacy
- Conceptual understanding
- Understanding student well-being.⁵

The inclusion of micro-credentials in the IB's *Learning Architecture* aims to give IB educators further agency over their learning and offer an accessible means – time- and cost-wise – for them to build their professional capabilities, both when preparing to deliver IB programmes and throughout their lifelong learning journeys.

Ecctis was commissioned by the IB to undertake a critical and in-depth research study to explore current thinking in the micro-credentials space and identify existing practices and trends. The main aims of the study consist of:

- Outlining existing practices by other issuers in the micro-credentials space
 - Reviewing up-to-date knowledge of new directions and different practices
- Forming a baseline of research for the IB to understand how its own practices relate to identified trends.⁶

This report provides a summary of the research questions and methodology that guided this study, a summary of the relevant literature identified and reviewed to answer the key research questions and a summary of the key findings from the review of practices from other issuers.

2.2 Research Questions

All components in this report are framed by responses to the following Research Questions (RQs):

Table 1: Micro-credentials processes study research questions

RQ1: What models and practices of micro-credentials are described in the literature?
<ul style="list-style-type: none"> • Particularly with regard to: <ul style="list-style-type: none"> • Definitions • Purposes • Accreditation and recognition types • Portability and stackability types • Referencing and cataloguing.
RQ2: What practices are applied by comparable issuers of micro-credentials working in the education space?
<ul style="list-style-type: none"> • Particularly with regard to: <ul style="list-style-type: none"> • Inclusion in qualification frameworks (e.g., teacher education) • Elements (e.g. mandatory, optional) • Digital platforms used • Assessment methods • Quality assurance systems • Awards (e.g. badge, proof, grade, micro degree, nano degree) • Credits (e.g. ECTS, UK credits) • Stacking options (e.g. pre-stacked packages, non-coherent stacking) • Portability options (e.g. digital wallets) • Costing and fees • Stakeholders involved (e.g. assessors, awarding bodies, quality assurance agencies, credential evaluators).

2.3 Notes on Terminology

This section consists of a list of concise definitions of technical terms used in this report. While not universal, the definitions provided reflect how these terms are most commonly used in the rapidly evolving micro-credentials space; as well as how this study employs them.

- **Bootcamps:** short-term, intensive training programmes developed to impart specific skills or competences. These programmes are often industry-aligned and aim to equip learners with practical abilities in a relatively short timeframe.
- **Credentials:** consist of demonstrated evidence of an individual's knowledge and expertise which make them suitable for a particular job
- **Credit-bearing / 'for credit':** a term used to refer to a training/learning experience that, upon successful completion, results in the learner earning academic credit.
- **Competences:** the specific knowledge and skills acquired by the learner, which may be demonstrated by a (micro-)credential.⁷
- **Digital badges:** a 'visual representation of the achievement gained from a micro-credential.'⁸

- **Digital credentials:** credentials that are ‘issued in a format that is both human and machine-readable.’⁹
- **Digital platforms:** used in this study to refer to online platforms or repositories (e.g. websites, databases) where micro-credentials are hosted, managed, and sometimes earned. These play a distinct role from that played by *issuing organisations* (see definition below).
- **Issuing organisations:** used in this study to refer to academic and non-academic institutions (e.g. training providers, professional bodies, international organisations, NGOs, etc.) that design, develop, and issue micro-credentials. Also commonly referred to as providers in the literature. Often, issuing organisations use *digital platforms* or repositories (e.g. websites) to host their micro-credentials, making them accessible to learners (see definition above).
- **Learning pathways:** the various routes of learning (e.g. courses, subjects, learning opportunities) that learners may take in order to earn academic credit and satisfy the requirements for successful completion of a course or qualification.¹⁰
- **Micro-credentials:** qualifications that are smaller in size than traditional degrees. They are, by definition, short, and tend to be specialised and accessible to a relatively wide audience, focusing on a specific skill, knowledge area or both. Note that there is currently no universal definition of ‘micro-credential’ – for a discussion on definitions, see [section 4.1](#).¹¹
- **Non-degree credentials:** knowledge and skills developed outside traditional degree programmes.
- **Portability:** the ability to share and transfer information across different platforms, institutions, and national contexts.
- **Stackability:** the ability of micro-credentials and other (small) learning experiences to be modular and combined to create larger credentials.¹²
- **Stackable credentials:** credentials that can be combined with other credentials to create larger and more comprehensive credentials overall.
- **Unbundling:** in the micro-credentials space, ‘unbundling’ refers to the notion of separating [a course, degree or learning experience] into its various components/parts, allowing ‘flexibility in terms of choice and learning pathways’.¹³
- **Upskilling:** the process of learning – or teaching others – new skills and competences that are relevant and/or required for labour market purposes.

2.4 Report Structure

In responding to the above research questions, the remainder of this report includes the following sections:

- [3. Methodology](#): this section provides a brief overview of the methodology applied in this study. This includes details of how the document selection and literature identification process for the study took place, the specific micro-credential issuers whose documentation was reviewed in detail, and a list of the specific themes that the review sought to gather information on.
- [4. Models and Practices of Micro-credentials: Evidence from the Literature](#): this section offers a synthesised analysis of micro-credential models as outlined in the literature.

In doing so, an overview of definitions and purposes of micro-credentials is provided, followed by analysis and consideration of common element and features of micro-credentials, quality assurance systems and recognition/accreditation.

- [5. Practices of Micro-credentials: Evidence from Selected Issuing Organisations](#): this section presents a comprehensive overview of key features of micro-credentials as identified in the practices of specific issuers and recognition agencies.
- [6. Key Findings](#): this section outlines the key findings from both the overview of micro-credentials models as outlined in the literature (section 4) and the overview of micro-credentials features (section 5) from the issuing organisations reviewed in the study. In doing so, the overarching trends and directions identifiable from literature and micro-credentials case studies will be outlined, and a succinct summary of key similarities and differences will be provided.
- [7. Bibliography](#): this section references all sources cited in the study, including the documents and weblinks utilised to source documentation for the specific micro-credential issuers considered in this study.

3. Methodology

3.1 Source Selection and Review

This literature review provides a comprehensive analysis of the existing body of knowledge on the current micro-credentials landscape, its related practices and trends, and how it relates to current debates on academic readiness and graduate employability, as well as professional learning and development for educators.

The present report puts forward a synthesis of relevant research studies to identify key patterns, themes, and gaps in the literature. This process will not only offer a deeper understanding of the topic, but also highlight relevant areas where literature is scarce or contradictory.

In a further aim, this report also reviews key issuers of micro-credentials, their design and the processes behind the awards they offer as part of the microlearning experience, as well as the wider accreditation space which ideally sits behind these micro-credentials. This preliminary research explores the extent to which information on micro-credential offerings is publicly available online.

To answer this study's research questions, a wide range of publicly available information is reviewed, including:

- **Academic literature** – Academic databases offer a broad range of peer-reviewed research articles from a wide variety of journals, as well as a wide variety of edited volumes.
- **Professional literature** – Industry and government reports, trade articles, as well as other tools aimed at regulating and auditing the micro-credentials landscape offer particularly useful insights into the processes behind these types of awards. For this study, this also includes publicly available information regarding micro-credential issuers.

These sources are supplemented by news media reports and articles on the state of the debate on micro-credentials, to capture more recent developments in this field.

As the methods utilised to identify and review relevant sources varied by the type of literature and documentation reviewed, a separate description of the method used for each one is provided below.

Academic literature

Searches were conducted on academic databases including, but not limited to, JSTOR, Taylor & Francis, Google Scholar, and Emerald Insight. This initial scoping effort used individual keywords (or a Boolean combination thereof) as listed below:

- | | |
|------------------------------|------------------------------------|
| • Accreditation | • Continuing education |
| • Alternative credentials | • Credentialing system |
| • Competency-based education | • Credit-bearing credentials |
| • Complementary credentials | • Credit-bearing micro-credentials |

- Digital badges
- Digital credentials
- E-credentials
- E-learning
- For-credit credentials
- For-credit micro-credentials
- Granular learning
- Learning outcomes
- Learning pathways
- Micro-credentials
- Microlearning
- Modular qualifications
- Nanodegrees
- Non-degree credentials
- Online learning
- Portability
- Professional development
- Quality assurance
- Reskilling
- Short courses
- Skills recognition
- Stackability
- Stackable credentials
- Unbundling
- Upskilling.¹⁴

Journal articles, conference proceedings and relevant book chapters were then selected for their relevance to the research topic, their date of publication, geographical coverage, and perceived quality of the research. Eligible sources were identified through their titles and abstracts. A review of the bibliographies led to a further extraction of complementary source material.

Professional literature

Given the professional nature of micro-credentials, this study also reviewed, where appropriate, sources pertaining to the challenges and opportunities associated with the implementation of micro-credentials at the level of the individual company or across industries. Relatedly, reports by national and regional governments, as well as regulatory bodies are increasingly responding to demands for greater transparency and quality assurance within the wider micro-credential landscape.

To complement the wider academic literature review, specific attention has been paid to the micro-credential processes of a list of individual issuers selected by the IB, based on the information publicly available for each one. These select issuers are:

- Childhood Education International
- Clark County Educators Association
- DePaul College of Education
- Friday Institute at NC State
- Harvard Extension School
- Institute for Personalized Learning
- National Education Association
- Nova Academy
- SUNY Buffalo State.

The websites of each of the above issuing organisations were first consulted to obtain information, documentation and materials related to their:

- Digital platforms
- Assessment methods
- Quality assurance and referencing to the NQF system
- Type of awards delivered
- Credit-bearing status
- Stacking and portability options
- Costing and fees

- Stakeholder involvement.

Information on each of these aspects was recorded in a templated spreadsheet, from which themes and trends have been extracted and identified. The information collated is displayed in different visuals throughout this report.

3.2 Research Direction and Limitations

This study considered the wider debate on micro-credentials, including discussions on academic readiness, graduate employability, and professional development and learning. While the focus is here on the latter, micro-credentials ought to be understood from an accessibility perspective (i.e. entry to university or the labour market) as well as continuing education and training.

A certain degree of ambiguity is present regarding the concept of 'micro-credentials,' visible both within the broader literature and the actual practices of issuing organisations and related stakeholders. A micro-credential may simultaneously refer to the programme of education and training (a module or a course – see below) as well as the credential (or visual representation) that follows the successful completion of that programme (via a digital badge or a paper certificate). This study accentuates this distinction where necessary.¹⁵

Situated in time, this report does not consider materials published in 2017 or before to ensure that the insights provided reflect the most recent state of the micro-credential landscape. The period 2018 to 2020 may be considered as the time during which micro-credentials emerged most visibly, following an initial period of popularity of Massive Open Online Courses (MOOCs) from 2012 onwards.¹⁶

This study also does not consider MOOCs and other short courses which do not lead to micro-credentials and/or digital badges.¹⁷ Neither does this review consider the pre-existing provision of short-term training courses and other extension courses at the national and regional level,¹⁸ particularly with regards to technical and vocational education and training (TVET).^{19,20}

One notable exception is what may be considered as the 'untapped potential' of micro-credentials: those short courses which fit the typical style and format of a micro-credential, but which are not yet considered as such,²¹ as well as original MOOC providers who now also award micro-credentials.²²

Since this literature review is a conceptual study of the procedural aspect of the micro-credentials landscape, no inferences are made based on the particular content of micro-credentials. Instead, this report focuses on the various definitions, as well as the contrasting views and interpretations of micro-credentials, to put forward an overview of the existing types, design and accreditation processes, as well as the challenges and opportunities associated with these new types of awards.

4. Models and Practices of Micro-credentials: Evidence from the Literature

Micro-credentials are an emerging topic of global interest, with research into these types of awards and, particularly, their design, content, and implementation similarly in its nascent stages.²³ These small certifications are a means of supporting equitable access to education and the recognition of all forms of prior learning as identified in UNESCO's 2030 Agenda.

Since micro-credentials emphasise the demonstration of skills and competences, they function as the ideal vehicle allowing occupational entry based on non-degree certification.²⁴ However, they equally allow for continued professional learning and development to be accurately credentialed.

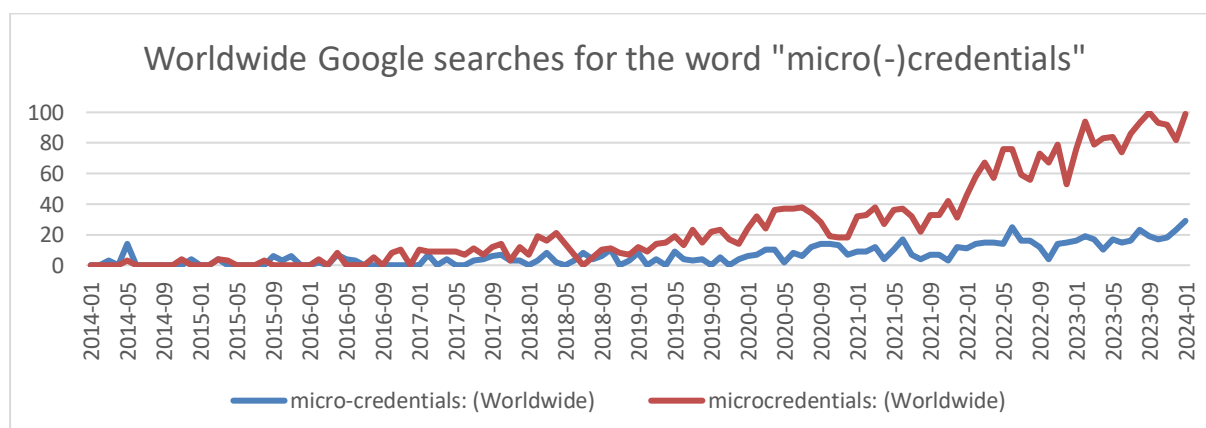
As an innovative and disruptive method of credentialing knowledge and skills, these awards hold the potential to transform the way in which educational providers offer their learning programmes as well as how learners acquire (professional) certification, especially in a world driven by technology, digitisation, and its associated skills gaps.²⁵

In this way, micro-credentials may be seen as responding to the historical challenges of access to education and skills training, as well as work readiness, graduate employability, and degree relevance for post-secondary and career pathways.²⁶

In fact, micro-credentials are increasingly perceived as an equally effective way of gaining modern skills as full degrees/other more traditional forms of certification (Bachelor's, Master's, or doctoral degrees). They allow for the formal organisation, and certification, of lifelong learning (LLL) which often takes place in an informal manner.²⁷

A Google Trends analysis conducted in January 2024 demonstrates that interest in 'micro-credentials' remains high, with worldwide keyword searches for the term peaking several times during the past few years:

Figure 1: Peak search popularity represented by the value 100.



In this context, the sections below provide an overview of key literature surrounding the nature of micro-credentials' processes, exploring:

- Definitions
- Elements / applications
- Purposes
- Quality assurance systems
- Accreditation and recognition types
- Portability and stackability types
- Referencing and cataloguing.

The sections below explore each of these aspects pertaining to micro-credential processes which, drawing from the literature, are then discussed in relation to this study's selected issuing organisations in [section 5](#).

4.1 Definitions of Micro-credentials

At the most basic conceptual level, micro-credentials are distinct from larger traditional degrees (or *macro-credentials*)²⁸ in that they refer to either the:

- Certification (or credentialing) received following the successful completion of a *short-term* education or training programme
- Short programme itself (see above).

Micro-credentials also differ from typical short courses and MOOCs, as these are often informally studied and/or certified. That said, both short courses and MOOCs are now increasingly perceived as 'unclaimed treasure' in the wider landscape, as they constitute potential additional modes of acquiring micro-credentials.²⁹

Whereas the definitions discussed in this section are focused on a conceptual approximation of micro-credentials, the definitions of micro-credentials as put forward by different issuing organisations have a much stronger focus on professional development. [Section 5](#), then, demonstrates that micro-credentials may also be employed as tools for professional learning and development, or the recognition and certification thereof.

Background and formats of micro-credentials

Governments around the world are searching for a flexible and responsive skills system consisting of modular, stackable, and transferable qualifications including micro-credentials. This development is part of wider trends including the promotion of dual-learning and apprenticeships, TVET reform, as well as the inclusion of AI in training and development.³⁰ Micro-credentials are here perhaps the most visible vehicle, the emergence of which was accelerated in large part by the COVID-19 crisis.³¹

Within this context, micro-credentials ought to be understood as a new type of non-traditional, non-degree awards which emerged in the context of professional training and development. They are directly relevant to industrial and societal demands and pose a potentially disruptive challenge to the existing, degree-centric frameworks of education, training, and assessment. Common categories under which micro-credentials tend to fall include personal professional

development, lifelong learning, digital professional certification, continuous skills development, skills-based hiring, as well as the gamification of education and training, among others.

A brief overview of how the existing and emerging forms of certification are differentiated, is as follows:

- **‘Credentials:’** typically defined as the demonstrated evidence of an individual’s knowledge and expertise which make them suitable for a particular job. Traditionally, final (degree) certificates, university transcripts, and diploma supplements all fall within this category.
- **‘Digital credentials:’** issued ‘in a format that is both human and machine-readable.’³² These types of credentials, in the form of badges containing metadata, are often considered alternative because they provide a different way of demonstrating acquired skills and knowledge.³³
- **‘Micro-credentials:’** often understood as ‘smaller, more targeted, and more flexible than traditional credentials.’³⁴
- **‘(Digital) badges:’** a ‘visual representation of the achievement gained from a micro-credential.’ Badges allow for the portability and easy transfer of information about an individual’s completed education and training programmes (see above).³⁵

This literature review will return to these three types of certifications throughout the report. It should be noted that the number of credits which typically make up a micro-credential may vary. This type of awards can be studied from below 5 credits to 100 credits or more. The "micro" in its name refers to the level of study being at micro-level, as opposed to traditional qualifications (at macro-level, also called "macro-credentials").³⁶

The micro-credential concept is further unpacked in Table 2, which offers an overview of the most common forms of micro-credentials currently on offer. Please note how the concept of ‘micro-credentials’ may refer to a wide variety of different education and training offerings. These types are typically marketised as different commercial products by their respective issuing organisation, but all fit within the wider micro-credential landscape.

*Table 2. An overview of different micro-credential formats.*³⁷

Type	Definitions	Example(s)
Bootcamps	‘Intensive, hands-on, project-based learnings.’ ³⁸	edX <i>MicroBootCamps</i> , ³⁹ University of Birmingham Skills Bootcamps ⁴⁰
Certificates of completion	A certificate awarded upon completion of a particular module, or course.	N/A
ExpertTrack	‘A series of online courses designed to help you master new skills in specialist areas.’ ⁴¹	FutureLearn ExpertTrack ⁴²
Intensives	‘Online [programmes] certifying [mastery of] specific skills or competencies in an area	EverUp Micro-credentials, ⁴⁴ University of Pittsburgh Intensives ⁴⁵

	directly associated with a high-demand job. ^{'43}	
MasterTrack	'A university-issued online graduate certificate, made up of thoughtfully selected portions from Master's degree programs from top universities.' ⁴⁶	Coursera MasterTracks ⁴⁷
MicroBachelors	'A series of college classes that have been customized and grouped together to meet the real-world needs of employers.' ⁴⁸	EdX MicroBachelors ⁴⁹
MicroMasters	'A series of graduate level courses from top universities designed to advance your career.' ⁵⁰	MITx MicroMasters ⁵¹
MOOCs	Online short courses	EdX and other online providers.
Nanodegree	'A certified online educational programme that teaches you specialised skills in less time than bachelor's and master's degrees.' ⁵²	Udacity ⁵³
Professional certifications	Industry-delivered short courses, certifying the acquisition of knowledge and skills in a particular field or industry.	Education and training providers, employers, Coursera. ⁵⁴
Specializations	'A [micro-credential] made of several courses. In some cases, the final course is a Capstone project which is assessed by student peers.' ⁵⁵	Coursera Specializations ⁵⁶
XSeries	'Created by world-renowned experts and top universities, and consist of groups of courses that explore a specific subject in depth.' ⁵⁷	EdX XSeries ⁵⁸

While not exhaustive, this list presents an overview of the predominant formats in which micro-credentials may be delivered. Importantly, however, it must be noted that not all national authorities recognise these awards (see below). The Australian Department of Education, Skills and Employment, for example, explicitly states that unassessed learning or courses, as well as badges 'obtained through participation only', do not constitute a micro-credential.⁵⁹

Given the wide range of micro-credentials that are currently on offer, micro-credential types and volumes of study can vary widely. In other words, micro-credentials can be awarded following the completion of a single module (for example, to certify the acquisition of a particular (soft) skill) or following a series of modules (i.e. a course). These courses can be predetermined by the issuing organisation or follow a mix-and-match choice by the learner.

Definitions across regions

Presently, definitions of micro-credentials vary widely at the international, national, regional, and institutional levels. In Table 3 below, an overview is given of the different definitions that are currently proliferating in the wider micro-credentialing landscape. Because of the discrepancies in the understanding of micro-credentials, education and training providers, as well as employers and national regulators all respond differently to this trend.

At the international level, UNESCO proposed a common and shared conceptualisation of micro-credentials, noting in particular disagreement about particular elements of an earlier proposed definition. In summary, the UNESCO-proposed definition of what constitutes a micro-credentials is as follows:

- A record of focused learning achievement verifying what the learner knows, understands or can do
- Including assessment based on clearly defined standards and [...] awarded by a trusted provider
- [Holding] standalone value and may also contribute to or complement other micro-credentials or macro-credentials, including through recognition of prior learning
- [Meeting] the standards required by relevant quality assurance.⁶⁰

Across Europe, the supranational understanding of micro-credentials (see also below) perceives this type of awards as:⁶¹

- Providing a recognised proof of the learning outcomes that a learner has acquired following a short learning experience
- Assessed against transparent standards [and] underpinned by quality assurance
- A certified document that lists the name of the holder, the achieved learning outcomes, the assessment method, the awarding body, and, where applicable, the qualifications framework level and credits gained.
- Owned by the learner, can be shared, are portable, and may be combined into larger credentials or qualifications.⁶²

Beyond that international standard, it is also important to reflect on how varying national approaches towards this type of awards may differ, align, or work towards the UNESCO definition.

Table 3. The global search for a definition of micro-credentials (selected).⁶³

Country / Region	Institution	Definition
Australia	Department of Education, Skills and Employment	A certification of assessed learning or competency, with a minimum volume of learning of one hour and less than an AQF award qualification, that is additional, alternate, complementary to or a component part of an AQF award qualification. ⁶⁴
Canada	Colleges and Institutes Canada	A certification of assessed competencies that is additional, alternate, complementary to, or a component of a formal qualification. ⁶⁵
Canada	Future Skills Centre	Rapid training programs that can help workers quickly master new skills or gain competencies. ⁶⁶
Europe	European Commission	A proof of the learning outcomes that a learner has acquired following short learning experience [...] contained in a certified document. ⁶⁷
Europe	European Council	The record of the learning outcomes that a learner has acquired following a small volume of learning [...] may be stand-alone or combined into larger credentials. ⁶⁸
Hong Kong	N/A	No national definition. Current provision at institutional level. ⁶⁹
India	National Council for Vocational Education and Training	Certifies achievement of a coherent set of skills and knowledge; and is specified by a statement of purpose, learning outcomes, and strong evidence of need by industry, employers, Government or the community. ⁷⁰
Ireland	Irish Universities Association	Micro-credentials are small, accredited courses designed to meet the demands of learners, enterprise and organisations, [They] provide learning opportunities which offer a highly flexible, bite sized and accessible way of upskilling and reskilling. ⁷¹
Ireland	Quality and Qualifications Ireland	Units of assessment that are smaller than traditional programmes of learning such as degrees and diplomas. They demonstrate that a learner has mastered a certain skill-set or demonstrated a level of achievement in a particular area. ⁷²
Jamaica	University Council of Jamaica	A certified small volume of learning which attests to knowledge, skills, and competencies [...] in a specific area of field. It may be acquired through assessed life and work experience or a dedicated short course. ⁷³
Japan	N/A	No national definition. Current provision at institutional level. ⁷⁴
Malaysia	Malaysian Qualifications Authority	[A] digital certification of assessed knowledge, skills and competencies in a specific area or field which can be a component of an accredited

		programme or stand-alone courses supporting the professional, technical, academic and personal development of the learners. ⁷⁵
Netherlands, The	Acceleration Plan	A reliable certificate that allows professionals to demonstrate what they know, can do and understand after successfully completing an educational unit. ⁷⁶
New Zealand	New Zealand Qualifications Authority	Small, stand-alone awards with set learning outcomes. ⁷⁷
Singapore	Skills Future	The Skills Framework offers courses linked to particular occupations and skills profiles. These are not explicitly labelled as 'micro-credentials.' ⁷⁸
United Arab Emirates	UAE Ministry of Education	A recognition of a small subset of an assessed learning [...] consist of learning outcomes that a learner has achieved through assessment against transparent and clearly defined standards. ⁷⁹
United Kingdom	Quality Assurance Authority (QAA)	Have a recognised role in upskilling and reskilling the workforce and in creating accessible pathways into higher education for non-traditional learners. [...] Much of this type of provision will be driven by industry need. ⁸⁰
United States of America	National Education Association	A micro-credential is a short, competency-based recognition that allows an educator to demonstrate mastery in a particular area. ⁸¹

The various definitions listed here all follow largely the same understanding of the nature and style of a micro-credential, even if they differ on other elements (see Table 4). It should also be noted that most, if not all, of these definitions come in response to the growing interest in micro-credentials by a variety of stakeholders, or as a reaction to the offering of this type of award at the institutional level.⁸²

Since many of these definitions talk about the same concept, it is unsurprising that various elements related to micro-credentials will often appear in these cross-national understandings of the term. A quick mapping of these elements, as they are shared across the national definitions, is here informative for the purposes of this study. Note how not all conceptualisations of micro-credentials indicate a credit-bearing nature, nor stackability (via academic or professional development credits):

Table 4. Shared aspects among different definitions of micro-credentials.*

	Department of Education, Skills and Employment (Australia)	Colleges and Institutes Canada (Canada)	European Commission	India (NCVET)	New Zealand (NZQA)	UK QAA (UK)	UNESCO	National Education Association (USA)
Assessment standards	✓	✓	✓	✓	✓	✓	✓	✓
Coherent set of skills						✓		
Credit-bearing / For credit	✓		✓		✓	✓		
Focused learning	✓	✓	✓	✓	✓	✓	✓	✓
Industry recognition		✓		✓				✓
Learning outcomes	✓		✓	✓	✓		✓	✓
Online modules		✓		✓				✓
Part of national framework	✓		✓		✓	✓		
Recognised providers	✓	✓	✓		✓	✓	✓	✓
Small volume of learning	✓	✓	✓	✓	✓	✓	✓	✓

*Author's assessment based on a review of the definitions provided in Table 3.

Towards a functional definition

The lack of a common understanding on micro-credentials is a direct result of the various definitions that are currently in use. Many of these descriptions use overlapping or contradictory terminologies and synonyms for the same key concepts.⁸³ An example is the difference between a micro-credential and a (digital) badge: describing a short course as well as one of the potential certifications that may be awarded upon the successful completion of that course.⁸⁴

Further complexity is added to this truly global debate as it ranges across different languages. Micro-credentials can then also be referred to as *micro-titres de compétences*, *microcredenciales*, بيانات الاعتماد الصغيرة (*small credentials*), or 微凭证 (*micro-credentials*) among others. Research is required in this regard to explore whether there are any conceptual differences between these different national understandings of the concept.⁸⁵

However, there is still a great deal of ambiguity surrounding the design, implementation and progression rights of micro-credentials. The popularity of these short-term learning packages, thus, contrasts sharply with their marketing, which frequently presents micro-credentials as the panacea for current skills gaps and the financial difficulties faced by education and training providers.⁸⁶

Point of note:

There is limited to no information on existing maturity models regarding micro-credentials, which could assist prospective issuing organisations seeking to enter the market. Such models would outline, in stages of increasing sophistication, the practices an organisation may adopt to implement micro-credentials within their wider education and training offerings. The existing literature suggests that much of the understanding of micro-credentials remains at the conceptual level.

True institutional readiness in the provision of micro-credentials will also depend on strategising the need for these types of awards, and how they fit into the institution's wider offering of education and training.⁸⁷

Rather than conceptualised as part of lifelong learning, or continuous professional development, it may then be more informative to refer to *incremental credentialing* with regard to this type of award.^{88,89} One suggested functional description of micro-credentials may then read: micro-credentials are aimed at entry to higher and/or other post-school education and training, continued professional development and/or expanding the skills achieved during previous degree study.

By incrementally adding new knowledge and expertise to a personal skills wallet, the true value of micro-credentials comes to the fore. Indeed, it may well be their ability to assess and certify short-term learning courses, particularly as to how these micro-credentials may function as a distinctive factor in labour market recruitment, as well as progression towards larger qualifications. Seen in the light of lifelong (or incremental) learning, micro-credentials ought not to be regarded so much as alternatives to traditional degrees but as their complement.

Summary

Conceptually, the literature on micro-credentials suffers from the presence of many related concepts, which, more frequently than not, unnecessarily confuse the debate on these new types of learning credentials. As a new type of award, many actors are welcoming the micro-credentials trend and associated common phrases, such as lifelong learning, modular certification, upskilling, stackability – to name but a few.⁹⁰ While this report will return to many of these key terms, this study has identified the core defining factor of micro-credentials to be functional, more than conceptual.

In other words, while a short course is not necessarily a micro-credential, a micro-credential always refers to a (relatively) short course. However, it would be misleading to perceive of micro-credentials as short courses, or the credentials following its completion, only. At the very least, the volume of study of this type of award is less extensive than that of a traditional qualification (see below). At its most expansive, a micro-credential refers to a record of focused-learning achievement that is:

- Based on clearly defined standards
- Awarded by a trusted issuing organisation
- Compliant with the standards required by relevant quality assurance regulators.⁹¹

A crucial fourth characteristic of this type of award is its standalone value, which exists simultaneously with its stackability towards larger, more traditional qualifications. Ideally, this progression is a built-in feature that should allow learners to stack several credentials of these short-term learning courses towards achieving a larger qualification, or at least enjoy advanced standing onto one. This stackability of credentials is one of the factors that sets a micro-credential (a credential of a short course) apart from other (already existing) short courses.

In what follows, this report first describes the key applications of micro-credentials, before discussing the purposes and objectives of these new types of awards.

4.2 Common Applications of Micro-credentials

4.2.1 Micro-credentials as Units of Learning

Micro-credentials may be understood as a “diminutive modular form of a diploma, or a certificate”⁹² that lends itself to the reskilling and upskilling of a workforce in a world codified as fast-changing.⁹³

Related concepts include ‘microlearning’⁹⁴ and particularly ‘granular,’⁹⁵ ‘unbundled’⁹⁶ or, indeed, on-demand ‘modular learning’ where individual learners may independently complete a set number of assignments associated with a module, which is then assessed and finally awarded with a micro-credential certificate and/or badge.⁹⁷ These key terms relate to micro-credentials as follows:

- **Upskilling:** the enhancement of existing skillsets, expertise, and knowledge to stay on-par with changing demands of industry and/or a job role
- **Reskilling:** the “process of gaining new or different skills to shift [a] current job role.”⁹⁸

- **Credentialing:** receiving professional certification of new or existing skills, expertise, or knowledge through the completion of short-term education and training programmes (see above).

Micro-credentials as (standalone) forms of credentialing

In their briefest description, micro-credentials can be understood as ‘short competency-based [and] industry-aligned [certified] units of learning.’⁹⁹ They are a direct response to the digital transformation of the workplace, and the increasing introduction of collaborative AI within existing professions.

Micro-credentials are often envisioned to plug emerging skills gaps and provide the professional certification for bottleneck professions that arise due to industrial innovation.¹⁰⁰ In fact, whereas micro-credentials emerged as a result of the organisation-driven demand for skills, different professions are now also adopting these types of awards for professional development and efficiency, even outside the digital transformation of the workplace.¹⁰¹

In this way, lifelong learning (or incremental credentialing) refers to granular certified learning¹⁰² that is driven by market demand, and which allows individual learners to continuously adapt to changing conditions. Perhaps unsurprisingly, this particular focus of micro-credentials draws academic criticism and professional scepticism alike. Some of the most prevalent critiques talk about learning and occupational fragmentation,¹⁰³ the creation of a gig economy¹⁰⁴ and the marketisation of education and skills policies,¹⁰⁵ as well as the subsequent devaluation of university degrees.¹⁰⁶

While a thorough discussion of these various points of criticism goes beyond the scope of this study, it is worth noting that the market-driven nature of the micro-credential landscape coats education and skills policy, traditionally the remit of a country’s national politics, in terms of the market, and leaves it open to the individual learner to establish “a constant and lifelong readiness and duty to adapt.”¹⁰⁷

As discussed below, the emergence of micro-credentials not only poses significant challenges to the accreditation of education and training programmes – typically the remit of national accreditation authorities – but also to the dominance of higher education and training providers.

Micro-credentials as alternative and complementary forms of credentialing

One particular view that emerges from the literature holds that micro-credentials are a direct alternative to standard four-year degrees. Indeed, micro-credentials are often put forward as such a disruptive and innovative force that they are perceived to have the potential to fundamentally rewrite the existing education and training model. In fact, those writing from this perspective often outline that these alternative credentials (micro-credentials, digital badges, and other industry-recognised certificates) can be more quickly achievable, more relevant, and often cheaper as well.¹⁰⁸

Part of the confusion again stems from a mistaken understanding of micro-credentials as short courses (see above). MOOCs are an excellent illustration of this – while providing an affordable and flexible method of study to learn new knowledge and expertise, these short-

term and on-demand training courses typically do not offer a clear progression pathway towards “credentialed and stackable higher qualifications” of training and education.¹⁰⁹

This downward pressure on traditional degree programmes stands in stark contrast to the continuing reluctance to see micro-credentials at a greater value than larger, traditional qualification types.

Point of note:

A recent report by the Online & Professional Education Association (UPCEA) on alternative credentials notes that the development of these types of awards is an emergent strategic priority for many businesses, but that consistency in the provision of these alternative credentials (including micro-credentials) is often lacking.¹¹⁰

While definitions and formats of micro-credentials differ, they all seem to largely agree on the size of a credential that is smaller than a formal degree. Micro-credentials, then, tap into a larger trend of alternative, skills-based credentials which enjoy a high degree of standalone value as an alternative to traditional qualifications.¹¹¹ Moreover, these non-degree credentials often fall into one of three categories:

- Certificates of course completion (for example, upon the completion of a MOOC)
- Certificates of training completion
- Certificates based on assessment.¹¹²

From a functionality perspective, however, micro-credentials will more often serve purposes that are complementary to traditional qualifications, offering access through credit transfer or stackability towards those larger degrees.¹¹³

Exactly how this process can take place is explained in further detail below. Nonetheless, it is worth noting at this stage that the final award of a micro-credential will typically differ fundamentally from the final certificate often associated with Bachelor's, Master's, or doctoral degrees. For this reason, micro-credentials may also be understood as alternative (digital) credentials¹¹⁴ which seek to offer greater flexibility in education and training, particularly when it comes to labour market outcomes (employment and career progression).¹¹⁵

4.2.2 Micro-credentials as Credentials

Technically speaking, a micro-credential refers particularly to the certificate or badge (the visual representation) that is typically awarded upon the successful completion of a short-term programme leading to this type of award.

Micro-credentials as digital credentials

Digital certification is a distinguishing feature of micro-credentials. Often presented in the form of digital badges, micro-credentials may be shared on an individual's social media profiles to demonstrate acquired knowledge and skills.¹¹⁶ Within the literature, the distinction between a micro-credential (the short-term learning programme) and a badge (awarded upon completion of such a programme) remains confusing, however.¹¹⁷

The US-based Touro University, for example, makes a clear distinction between a badge ('a digital representation of [competences] and/or achievements') and a micro-credential ('a sequence of digital badges that can be accumulated over time to create a pathway').¹¹⁸ In the US format, then, it seems that separate badges may be awarded for the completion of separate courses within one micro-credential, eventually leading to a wider encompassing digital badge testifying to the completion of that particular credential.

With regards to the portability of such awards, the most common format of these digitally signed certificates follows Mozilla's open badge standard.¹¹⁹ For the purposes of verification, recognition, and mobility, the metadata that is embedded within this badge then typically includes information such as the learner's identity, awarding body, date of award, volume of study, and assessment criteria.¹²⁰ Particularly for the European Union's MICROBOL project, for example, the following criteria are delineated:

- Information on the learner
- Information on the issuing organisation
- Information on the micro-credential
- Information on the learning experience
- Information on the [qualification framework] level
- Form of participation
- [Entry] requirements.¹²¹

Point of note:

The European Consortium of Innovative Universities (ECIU), which is a partnership between eleven European universities, recently started awarding micro-credentials. The digital format in which these credentials are delivered may be seen in Figure 2, below. The authenticity of these micro-credentials, delivered by the ECIU, may be verified via their [online portal](#).

Figure 2: A test example of e-sealed micro-credential, awarded by the ECIU University.



Source: European Consortium of Innovative Universities, 2024.

Please note that, while being an open badge, the option to share (and thus print) this document as a PDF is still available.

This information may then be stored in an individual learner's digital wallet and, ideally, verified on the awarding body's public website. Ways to automate this verification process through AI are currently being explored.¹²²

On the side of employers, a recent report by the US-based Digital Credentials Consortium found a wide gap between the potential of digital credentials and their adoption and integration in the wider labour market and its associated processes of skills-based hiring and career-progression frameworks.¹²³ Indeed, rather than merely digitising existing qualifications and other awards, the real value of digital credentials goes beyond verification to also include:

- **Skills matching:** an active labour market policy whereby an individual's acquired qualifications and skills are effectively matched to labour market needs.^{124,125}
- **Talent identification:** expanding the candidate recruitment pool by including individuals who do not possess the required degree qualifications but do possess non-degree skills which may be credentialed.
- **Learning pathway provision:** whereby particular job candidates are provided with the ability to fill specific skills gaps following a period of further education and/or training.¹²⁶

At present, this 'credentialing utopia' describes a situation where 'users should be able to have all their achievements documented as credentials, be able to store those credentials in a digital wallet of their choice and be able to easily share them and have them verified and validated with any actors.'¹²⁷

In reality, the micro-credential landscape is much less developed, with particular learning pathways still unclear in terms of advanced standing, progression, and/or interoperability between academic and non-academic institutions. As a result, there remains a great deal of uncertainty among learners, issuing organisations, and employers.¹²⁸

Micro-credentials as unbundled packages of learning

Perhaps one of the greatest misconceptions regarding micro-credentials is that they are repackaged short courses. Their twin function is to not only provide a certificate of completion, but also to showcase clear progression pathways, either towards complementary micro-credentials or as part of a larger, more traditional degree. That said, many pre-existing short-term learning programmes may well be transformed into micro-credentials, particularly if their volume of training and study is expressed in an explicit number of credits that a learner can earn.¹²⁹

While micro-credentials may very well be studied as standalone awards, their true value shines through in the ability to 'stack' two or more micro-credential awards towards a larger degree programme.¹³⁰ Often these separate micro-credentials may take on a pick-and-mix format rather than be part of a predetermined set of modules (circa ten hours in duration, for example) leading to a degree, showcasing the flexibilisation of education by micro-credentials (see below).¹³¹

Typically, this 'stackability' of micro-credentials would happen via credit transfer, where learners are exempted from particular modules of that traditional qualification based on their prior learning, training and study.¹³² Notably, credit here refers to the unit expressing volumes

of study.¹³³ From a professional development point of view, then, credits may also be awarded in acknowledgement of prior learning, demonstrated skills, or other capabilities.

This progression method is not necessarily something new. Because of the modular nature of micro-credentials, these types of awards are typically ‘unbundled’ from larger degree qualifications.¹³⁴ In this way, micro-credentials (which form part of a larger bundle – that is, a degree), can be studied on their own or count towards that larger qualification.

As such, micro-credentials are a way of credentialing such learning on a small scale and fall largely within two categories:

- **Credit-bearing (or for-credit) education and training:** short-term learning programmes (micro-credentials), whose volumes of study are expressed in academic credits, including MOOCs for credit and MOOC-based degrees.¹³⁵
- **Non-credit continuing education and training, i.e. digital badges:** providing digital evidence of acquired competences, which may be displayed visually on an individual’s CV. Because of the lack of credits, the volume of study may be expressed in study hours instead.^{136,137}

In other words, micro-credentials will always be constituted of some form of a ‘certificate-earning [short-term] learning programme,’¹³⁸ even though the exact award that is delivered upon successful completion may differ from a traditional certificate to a (credit-bearing) digital badge.

Point of note:

A regional approach to micro-credentials is proposed by the government in Ontario, Canada. Here, the aim of embedding micro-credentials within the Ontario Micro-credential Quality Assurance Framework puts forward an explicit “Ontario Micro-Credential” (OMC) as a protected term, particularly as opposed to the global usage of the concept. The OMC label can thus signal a degree of quality assurance, as set against the quality framework.¹³⁹

While certain issuing organisations may specifically link micro-credentials to a for-credit stackable pathway¹⁴⁰ and/or even explicitly propose credit-bearing micro-credential,¹⁴¹ non-credit-bearing micro-credentials (badges or other certificates),¹⁴² which are typically awarded following an informal study programme, may still be recognised as part of a prior learning agreement.¹⁴³

Summary

In many ways, micro-credentials are a repackaging of existing courses under a new category, particularly when it comes to non-credit-bearing and informal education and training offerings. As part of the wider micro-credential trend, many short courses are now formally reorganised as micro-credentials, typically allowing for credit transfer. Other issuing organisations are creating their own bespoke micro-credentials or unbundling larger degree programmes into separate modules. It is clear that these types of awards are complement to, rather than a “credible replacement” of, university credits.¹⁴⁴

Common themes that emerge from the literature note that micro-credentials ought to:

- Allow for upskilling or reskilling for industry-required needs, thereby enhancing or widening the talent pool.

- Be studied on their own (unbundled modules) or be 'stackable' towards large degrees.
- Be an alternative to or, more frequently complement more traditional qualifications.
- Count towards academic credit, exemptions, and/or credit transfer.
- Appear as a digital signed certificate or a badge in their final award.

4.3 Purposes of Micro-credentials

Enhancing personalised and lifelong learning

The way in which micro-credentials promote education and training sits in the understanding of lifelong learning as a non-linear and fluid landscape. As a new and potentially disruptive format of education and training, micro-credential offerings allow for “innovating beyond, and within, traditional study offerings and programmes.”¹⁴⁵ These non-degree credentials extend the professional development landscape through “competency-based learning aligned with [...] needs, goals, and interests.”¹⁴⁶

Indeed, micro-credentials account for learners’ “current competency level, individual needs, and interests” but also allow for personalisation of learning pathways in terms of pace, time, and location of study.¹⁴⁷ A related concept, career-based education calls this an approach that teaches ‘skills relevant to a user-specified career goal.’¹⁴⁸

The self-directed nature of micro-credentials sets them apart from traditional degree programmes which are typically predetermined and in-person. Through unbundling and stackability, this emphasis on smaller chunks of learning has the potential of overhauling the system of education.^{149,150} A move away from degree completion here contributes to fears of learning fragmentation (see above).¹⁵¹ However, with micro-credentials, education and training may count towards larger degree qualifications (stackability) or extend beyond those, what are usually considered terminal degrees.¹⁵²

Point of note:

An interesting example of pre-existing credentials (i.e. short-term education and training programmes not necessarily labelled micro-credentials) are the short learning programmes offered by the University of South Africa. According to the Unisa website, these are “introductory, practical, non-degree programmes meant to develop skills and knowledge in a chosen subject in a quick and effective manner.”¹⁵³

The learner value framework proposed by Oliver (2021)¹⁵⁴ argues that with micro-credentials, much like with other educational activities, benefits are typically measured against costs. The success of micro-credential provision, then, relies on the issuing organisations’ understanding and interpretation of the feasibility of micro-credential offerings based on an individual learner’s “motivation [for study], previous education, and circumstances.”^{155, 156}

In terms of the learner demographic, there is yet little evidence to suggest that micro-credentials are fundamentally changing the student population towards non-degree holders. Instead, these types of awards are most often pursued by on-the-job learners who already hold a Bachelor’s degree or above.^{157, 158}

Professional learning and development may then well be the most interesting area in which micro-credentials hold the most added value. Indeed, micro-credentials in this space serve as the formal recognition of knowledge and expertise gained following an initial education and training programme. Through credential(s), these competences may then be acknowledged and mapped for an individual's further professional progression.

Meeting industry-needs and closing skills gaps

Directly related to personalised professional learning and development,¹⁵⁹ is the fact that micro-credentials are directly responding to industrial needs. They are therefore often in-demand learning offerings (see above).

Since micro-credentials allow individual learners to pursue a personalised learning trajectory of continuous professional development which is bespoke, self-directed, and flexible, this particular learning configuration may be beneficial to a variety of learner types:

- Recent graduates: micro-credentials may expand or enhance skills and expertise gained through their degrees¹⁶⁰
- Non-degree holders: micro-credentials may figure as a pathway to the labour market or access to higher education, prior skills may be recognised in the form of micro-credentials
- On-the-job professionals: micro-credentials may be utilised for continued professional development and learning.

As a result, micro-credentials challenge the value and relevance of traditional models of education and training; and particularly whether learners receive a “good return on [their] educational investment” within those settings.¹⁶¹ These returns may be understood as higher wages, promotions, and general wellbeing.¹⁶² However, alongside wage increases, the pursuit of flexible and continuing professional learning and development also allows professionals to pursue further specialisations, and receive recognition (through certification) for the acquired knowledge and skills.

The questions of graduate employability,¹⁶³ work readiness, and the acquisition of work-aligned skills necessarily ought to navigate economic, technological, health and environmental, as well as geopolitical trends.¹⁶⁴ To stay relevant, learners must then frequently update their skillsets. Moreover, with the advent of generative and collaborative AI, investments in the green transition, as well as the wider digital transformation of the workplace, learners may even need to reskill to adapt to disrupted working environments.¹⁶⁵

Notably, micro-credentials are presented as a credible way to earn professional certifications.¹⁶⁶ They allow for previous working experience and other forms of learning to be mapped and accurately certified, particularly regarding:

- Skills development
- Assessment
- Standards
- Quality assurance
- Employer recognition.

Facilitating digital transformation

With the digital transformation of the labour market in general, as well as employer-specific (that is, organisational) demands for advanced skills,¹⁶⁷ the digitisation of credentials itself is driving recruitment processes which are increasingly focused on skills-based hiring away from a singular focus on traditional degrees. Subsequent career development pathways are similarly moving towards credentialed on-the-job learning.¹⁶⁸

Occupations are, however, typically understood as “bundles of skills” allowing workers to complete employment tasks.¹⁶⁹ Skills, thus, cannot be understood in isolation of their wider skills clusters, or job roles requiring a mix of traditional and soft (durable) skills derived from education, training, and experience. Within this context, research on the economics of skills suggests that the relative complementarity of skills, as well as the skills background of individual learners, is more important than the absolute value of a single skill.¹⁷⁰

Point of note:

Recognising the urgent need to recruit and retain professional in the STEM sector, the Australian government is putting forward micro-credentials as the vehicle to:

- Enhance access towards STEM degrees, either for entry onto relevant degree programmes or building on previous degrees
- Further coordination between university and vocational sectors, via work-based placements and upskilling
- Engaging skilled migrants and graduates for post-study work visas.¹⁷¹

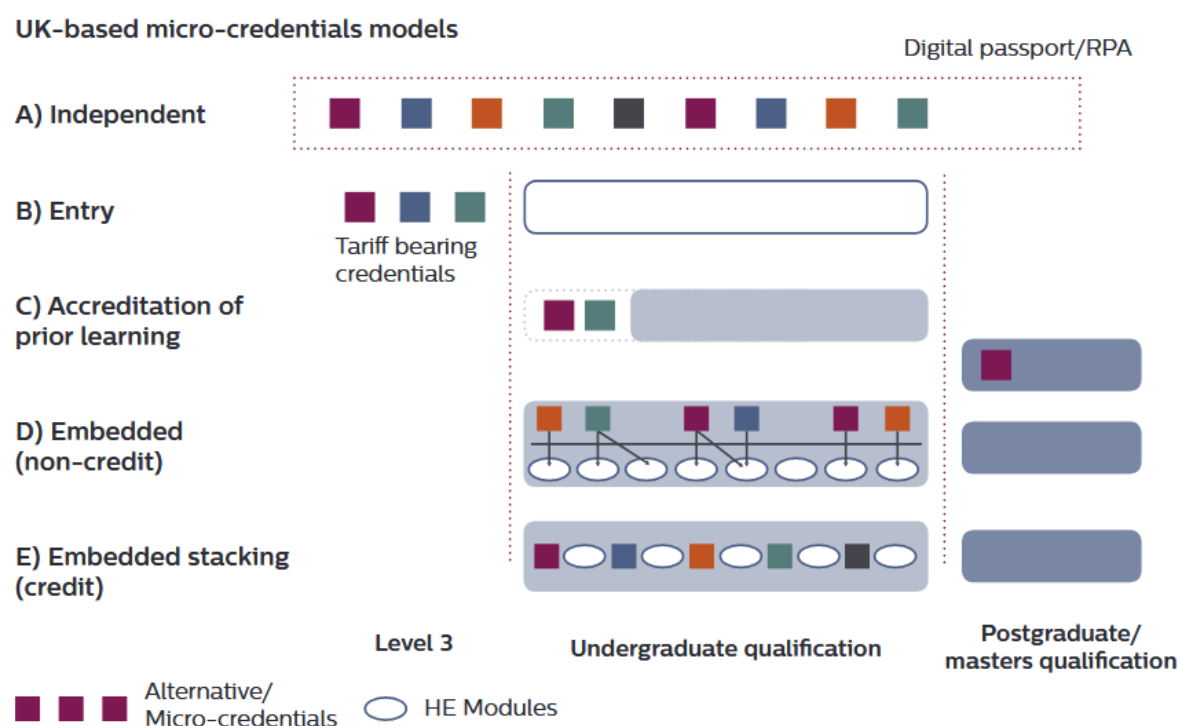
As explored earlier, it is within this context that the stackability of micro-credentials is most visibly demonstrated, as it underscores the ideal interoperability between micro-credentials but also between a (set of) micro-credentials and traditional degrees.

Verification of skills and competences for mobility

Like open learning courses, on-the-job and other workplace-based assessments only receive a limited credentialed indication of completed education and training. This relative lack of verifiable information often makes it difficult to assess skills when hiring.¹⁷²

Particular configurations of how micro-credentials may count, stack towards, or complement other forms of education and training were recently explored in a QAA report.¹⁷³

Figure 3: An outline of potential modes for UK-based micro-credentials



Source: Reece, in QAA. (2021). [Quality Compass: Which Way for Micro-credentials?](#)

Portable and shareable open badges containing metadata (see before) are one way to verify these types of education and training, as well as professional learning. Indeed, as research suggest, skills profiling (or skills recognition) through micro-credentials would allow for these, often short-term forms of training to count towards higher education programmes.¹⁷⁴

In this 'skillification' of higher learning¹⁷⁵ competences achieved during professional employment may be awarding credit for prior learning (non-credit to credit pathways),¹⁷⁶ and count towards other, more traditional learning programmes.¹⁷⁷ Put differently:

*'Skilled credentials' which can include industry certifications, apprenticeships, and other forms of short-duration learning typically recognized by micro-credentials, have become an increasingly important mechanism for job attainment and career advancement.*¹⁷⁸

Importantly, research findings here again suggest that the complement of skills derived from an "entire degree programme" was demonstrably higher than the skill(s) associated with a single course.¹⁷⁹ What is necessary, then, is the further development of skills intelligence and assessment on past, current, and (likely) future and emerging skills gaps. In this skills governance ecosystem, further clarity would ideally be provided to individual learners as to the skills and competences they ought to pursue.¹⁸⁰

While that conclusion may be self-evident, it directly challenges an underlying tendency of perceiving micro-credentials as necessarily replacing traditional degrees.¹⁸¹

Developing durable soft skills

Micro-credentials do not only allow individual learners to upskill their capabilities to handle ever more complex employment tasks,¹⁸² skills acquisition in this context also signals a

demonstrated willingness to invest in personal development with the prospect of future, higher productivity and wages.

During these learn-to-earn journeys, the active learning and acquisition of durable skills associated with micro-credentials allow learners to signal a competitive advantage to the labour market.¹⁸³ For example, a degree holder may further enhance his CV with badges, which show a frequent updating of their skillset.¹⁸⁴ Particular individual skills, or a combination thereof (skillsets) may then again be presented to learners via single modules, or courses, respectively.

Teaching professionals, especially when confronted with new cultures and experiences within their student cohorts, may benefit in particular from micro-credentials that bring global contexts within the educational profession. World Savvy, for example, highlight global competence in education for educators and teachers, by bringing global perspectives into practice. Examples of these micro-credentials include:

- Accountable Talk about Globally Significant Issues¹⁸⁵
- Communication for Global Action Using Technology¹⁸⁶
- Writing Evidence-Based Arguments about Global Issues¹⁸⁷
- Inquiry Learning about Globally Significant Issues.¹⁸⁸

By signalling adaptability through verified continued up/reskilling, professionals are not only able to showcase their relevant skills, but also to exhibit ambition and motivation for further professional development.¹⁸⁹ Micro-credentials and badges, then, also help to validate these otherwise “intangible qualities.”¹⁹⁰

The importance of soft or transferable skills is of course related to the matter of graduate employability, or the “skills and attributes that [...] students must acquire or develop during their studies and must possess in order to enhance their job and career prospects after graduating.”¹⁹¹ In this regard, the instrumental acquisition of skills and attributes is directly related to the concepts of work readiness and graduate employability.

However, it should be noted that the recurrence of skills gaps may be characterised as “generalised complaints” often lacking conceptual clarity on what exactly is missing. In this mismatch between education and trainings offerings and industrial demands, further clarity is required on the labour market outcomes of education and training outside of government policy or market demands (see above).¹⁹²

Summary

The nature of micro-credentials arguably goes far beyond just replacing traditional degree programmes at Bachelor’s degree level and above with non-degree credentials. Indeed, micro-credentials are only disruptive in the sense that they offer alternative and, often, complementary opportunities for education and training that may count towards or build on existing degree programmes.

With micro-credentials, individual learners can explore (further) advanced knowledge and training based on an introductory level, or as an entry-level qualification.¹⁹³ These types of

awards allow learners to stand out and demonstrate important signals related to job readiness and employability to prospective employers.

Micro-credentials also allows teaching professionals to pursue professional learning and development in a targeted manner, allowing them to tailor their learning to specific areas of interest. These credentials can:

- Increase their classroom practice
- Advance their careers
- Allow teachers to stay on top of ongoing development either in their field, or in the wider world.

However, for micro-credential offerings to be truly effective, they ought to be backed up by a robust system of quality control.

4.4 Quality Assurance Systems

Different actors across a landscape

Faced with a micro-credentialing boom, governments around the world have expressed their concerns regarding the verification of learning, learners' identity, and the assurance of the quality of education and training delivered as part of these, often short-term programmes.

The micro-credential landscape is characterised by a multi-actor ecosystem across national, regional, and sectoral (industrial) boundaries.¹⁹⁴

Within this landscape, national governments, and quality assurance bodies, together with education providers, can play a significant role in ensuring that micro-credentials are offered to national standards, and build towards overcoming general skill shortages in the labour market more widely. This is important to guarantee that the micro-credentials ecosystem does not solely focus on 'firm-level skill shortages' or, indeed, become the gig qualifications that micro-credentials are already labelled as by their critics.¹⁹⁵

Table 5. An overview of the different stakeholders involved in the micro-credential landscape¹⁹⁶

Stakeholder	Interest and/or remit
Individual learners	Up and/or reskilling, personal professional development (see above).
Education providers	Offering micro-credentials to meet evolving needs of learners and industry.
Employers ¹⁹⁷	Provide micro-credentials with universities or on their own initiative to either up and/or reskill employees, or to gain clarity on skills gained via micro-credentials to hire talent.
Professional bodies	Establishing digital learning platforms, provide edtech solutions for micro-credential learning.
Quality assurance authorities	Ensuring quality control of micro-credential offerings, registering nationally recognised micro-credentials.

At the institutional level, as well, micro-credentials play a potentially disruptive role in the way in which education providers design their learning offerings, as well as how companies train (that is: upskill and reskill) their employees. Particularly with regards to:

- Flexible, modular, and competency-based pathways, rather than lengthy degree programmes
- Targeted learning experiences, bespoke to personalised needs and interests in an individual learner's career path.

Similarly, there could be further and closer collaboration between both companies and education providers in the development of micro-credentials.^{198,199}

However, it is largely unsurprising that the implementation of micro-credentials remains one of its key problems. To move towards micro-credentials as a new kind of award, or at least one that complements existing degree programmes, will require a great deal of change management between governments, employers, and education providers, most of which are at present 'heavily invested in the [...] macro-credential model.'²⁰⁰ Similarly, the costs associated with creating and implementing micro-credential offerings may require strategic decision-making, typically including a business model.²⁰¹

The diverging interests between the different groups of actors within the micro-credential ecosystem is a partial cause for the often-muddy implementation of micro-credentials.²⁰²

Accreditation and recognition types

It may be beneficial for systematic public policies to regulate the micro-credential offerings by education and training providers, while establishing an accessible system for potential learners, whether they be on-the-job professionals, fresh graduates, or jobseekers.²⁰³

In such a diverse landscape, it is unsurprising to find a variety of quality assurance systems currently underway at the national and supranational level. This divergency of accreditation approaches²⁰⁴ is not dissimilar to the variety of definitions of micro-credentials touched upon earlier. Illustrative to the current relevance of micro-credentials, the name of the New Zealand Qualifications Framework was changed over the course of 2023 to 2024 to also reference other credentials (including micro-credentials).²⁰⁵

Table 6. An overview of different approaches towards quality assurance of micro-credentials

Country	Regulator	Framework	Credit volumes
Australia	Australian Department of Education	National Microcredentials Framework	A minimum volume of learning of one hour and less than an AQF award qualification. ²⁰⁶
Ireland	Quality and Qualifications Ireland (QQI)	National Framework of Qualifications	N/A ²⁰⁷

New Zealand	New Zealand Qualifications Authority (NZQA)	New Zealand Qualifications and Credentials Framework (NZQCF)	1 to 40 credits ²⁰⁸
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A comprehensive understanding of the micro-credential landscape must then go beyond learners, employers, and issuing organisations, to also include quality assurance regulators lest there appears a “hidden stratification” in the value of particular micro-credential offerings between employers and the individual learners that pursue these courses.²⁰⁹

As the regulating bodies behind these frameworks, the inclusion of micro-credentials onto National Qualification Frameworks (NQFs) or the creation of bespoke national micro-credentials frameworks allows for a clear vision on the national pathways that are possible with these kinds of awards, ideally in terms of level and volume of study. Micro-credentials are here often explicitly mentioned and referenced to national frameworks, while at other times they fall under historical approaches towards small, short-term, or special-type awards.²¹⁰

Related to national frameworks, as well as quality assurance more generally, several national governments are also providing transparency in the micro-credential offerings via centralised databases which are freely searchable by all actors in the micro-credential ecosystem. Examples include the Australian *Microcreds Seeker*, the NZQA’s micro-credential register, as well as the Irish Microcreds.ie platform.²¹¹

Point of note:

In the development of their regulatory framework on micro-credentials, Slovakia further proposed a double distinction between

- **Micro-credentials** (*mikroosvedčenie*): a softly regulated award, with the level of study and other elements indicated by the awarding institution.
- **Microqualifications** (*mikrokvalifikácia*): a strictly regulated award, listed on the national qualifications framework.²¹²

Summary

Concerns over the quality assurance of micro-credentials go beyond the call for academic oversight of training and education by micro-credential issuers, or indeed the creation of university-industry partnerships. Micro-credentials, driven in large part by soaring demand for increasingly complex skills, the digital transformation of the workplace, and the continued professional development that comes with it, also require oversight to ensure quality and value. It is this provision of credence to micro-credentials that allows learners to be sufficiently reassured of the quality of the courses/programmes these credentials are attached to, as well as their associated certificates. Employers, then, in turn, are also able to show a degree of trust towards holders of these externally verified certificates.

4.5 Summary

The rapid emergence of micro-credentials has led to a proliferation of different understandings and conceptualisations of, as well as different approaches towards, micro-credentials. Overall, there is a certain ambiguity around the term, which means that a 'micro-credential' may simultaneously refer to a:

- Short-term training programme
- The certification that follows upon the successful completion of that short-term training programme.

Given the, often digital, nature of micro-credentials, these certificates are often given by way of what are called badges. These should not be taken as a separate format of micro-credentials, but instead understood as a particular vehicle wherein information about the learner and the education and training programme may be embedded.

In other words, micro-credentials are a truly global trend that seeks to reinterpret the delivery and certification of learning and development, widely defined. While there is a degree of consensus-seeking at the international level (UNESCO) as well as the supranational level (the European Union, for example), various national and regional interpretations of this concept will continue to co-exist.

Moreover, behind the concept of micro-credentials, there are many different formats, all of which fall under that larger banner:

- Bootcamps
- Certificates of completion
- ExpertTrack
- Intensives
- MasterTrack
- MicroBachelors
- MicroMasters
- MOOCs
- Nanodegree
- Professional certifications
- Specializations
- XSeries.

While most of these refer to the commercial names by which different micro-credentials are marketised, micro-credential offerings are available in a variety of forms, each designed with different types of learners or circumstances in mind.

Across these different formats in which micro-credentials are offered, this type of award typically holds a combination of one or more of the following, common features. In other words, micro-credentials can be expected to be:

- Assessed against institutional (or national standards)
- Provide training in a (coherent set of) skill(s)
- Leading to stackability and/or exemptions (via credit-bearing or skills mapping)
- Emphasise Industry recognition

- Form part of a national framework.

Note that the exact configuration of these elements may differ, as dependent on the nature of the education and training award in question and/or the orientation of the particular issuing organisation.

Building on the above, micro-credentials typically serve one of three purposes:

- Academic entry
- Labour market entry
- Professional learning and development.

The latter is where the true value of micro-credentials shines through as they may be pursued at various points in an individual learner's educational or professional career: to gain entry to (further) academic study and/or to upskill or reskill for professional development purposes.

As a result, micro-credentials can be either:

- Standalone units of learning
- Credentials (credit-bearing / non-credit-bearing).

In this way, holders of micro-credentials may variably present a micro-credential to show recognition of new or enhanced skills, or other forms of previous learning, as well as deploy one or more micro-credentials towards the completion of larger packages of education and training.

The different purposes of micro-credentials can then be summarised as follows:

- Enhancing personalised and lifelong learning
- Facilitating digital transformation
- Developing durable soft skills.

Limited attention has been paid to accreditation and quality assurance processes around this type of award. Given their quick emergence in response to the academic and industrial needs, the vast proliferation of micro-credentials may require a renewed commitment to the quality control and monitoring of the provision of micro-credentials.

5. Practices of Micro-credentials: Evidence from Selected Issuing Organisations

Following the review of academic and professional literature on micro-credentials in section 4, this section draws from publicly available documentation by nine select issuing organisations and their specific micro-credentials offerings. These include the:

- 1) Childhood Education International
- 2) Clark County Educators Association
- 3) DePaul College of Education
- 4) Friday Institute at NC State
- 5) Harvard Extension School
- 6) Institute for Personalized Learning
- 7) Nova Academy
- 8) SUNY Buffalo State
- 9) Teacher Career Pathways.

This section aims to complement the literature review by demonstrating how different issuing organisations may operationalise the various purposes and elements of micro-credentials in their own education and training offerings.

Hence, this section reviews the practices of a range of micro-credential issuers, drawing on documentation publicly available for each one to facilitate an understanding of how different organisations provide and award micro-credentials. The selection of and focus on these issuers allowed Ecctis to examine the different elements, purposes, and objectives of micro-credentials within the education space.

5.1 Overviews

This section provides at-a-glance summaries of the nine micro-credential offering organisations reviewed in this study, summarising the publicly available information on their practices in regard to their:

- Micro-credentials offerings
- Purposes
- Digital platforms/websites²¹³
- Credits, awards, and stackability/portability
- Assessment methods
- Quality assurance
- Costs.

The list of micro-credentials issuing organisations reviewed includes a small sample of education and training institutions dedicated to supporting educators in their professional learning and development journey. They offer micro-credentials tailored to various aspects of teaching and learning, variably focusing on innovative pedagogies, technology integration, or fostering inclusivity in the classroom.

Some university-based issuers of micro-credentials are also reviewed, to provide insights into the academic micro-credentials offering.

1) Childhood Education International

Childhood Education International (Washington, DC) is an international organisation focused on 'developing and amplifying solutions that lead to positive change in pre-primary and primary-age children's learning and lives'.²¹⁴ The organisation's Center for Professional Learning aims to provide a 'series of professional development opportunity centered on refugee education and quality holistic learning'.²¹⁵ It provides a range of professional learning and development opportunities in early childhood education, including child development, curriculum planning, and classroom management.

Micro-credentials on offer: Childhood Education International's micro-credentials offering is part of its flagship project – the Refugee Educator Academy (REA) – designed to 'support educators and to offer sustainable, holistic learning opportunities for teachers working in refugee displacement, crisis, migration, and resettlement contexts'.²¹⁶

As part of the REA, Childhood Education International offers a range of free micro-credentials, including:

- Differentiated Instruction for Quality Holistic Learning in Displacement Settings
- Cultural Proficiency & Culturally Sustaining Pedagogy in Refugee Education
- Differentiating Instruction to Support Refugee Students.²¹⁷

Main purpose/type: Professional development, experience-focused.

Assessment methods: Assessment methods vary, but can involve:

- Demonstration of teaching ability in context, i.e. in disrupted situations
- Submitting a reflection and/or overview of the teaching professional's student cohort and/or classroom
- Writing prompts, particularly with regards to culturally relevant practices
- Further reflections on the individual learner's cultural proficiency.²¹⁸

Platforms/websites: Digital Promise.

Award type: Badges.

Credit-bearing: No.

Stackability/portability: No publicly available information was found regarding the stackability of micro-credentials by Childhood Education International.

Quality assurance: No publicly available information was found specifically on Childhood Education International's quality assurance processes around micro-credentials. However, inclusion in the Digital Promise platform requires issuers to meet certain criteria – see [section 5.7](#) on Quality Assurance for more information.

Costs: Typically offered free of charge, via the Digital Promise platform.

2) Clark County Educators Association

The Clark County Educators Association is a union of teaching professionals in Las Vegas, Nevada. It offers 'research-backed professional learning opportunities that [bridge] the gap by impacting instructional and professional practices.' They do so particularly with regards to supporting student behaviour, academic progress, and school climate.²¹⁹

Micro-credentials on offer: The CCEA offers a range of micro-credentials relevant to educators, including on the following topics:

- Motivating Learners
- Global Education
- Understanding All Learners
- Engaging Stakeholders.²²⁰

Main purpose/type: Professional development, experience-focused.

Assessment methods: Assessment typically happens through self-reflective practice.

Platforms/websites: Digital Promise.

Award type: Badges.

Credit-bearing: Yes – professional credit.

Stackability/portability: Micro-credentials can be stacked through CCEA's Professional Growth System.

Quality assurance: No publicly available information was found specifically on CCEA's quality assurance processes around micro-credentials. However, inclusion in the Digital Promise platform requires issuers to meet certain criteria – see [section 5.7](#) on Quality Assurance for more information.

Costs: Micro-credentials come in at USD 40 per course, although they are fully reimbursed for Members (cost for membership is USD 846 per year).

3) DePaul College of Education

The DePaul College of Education is the Education college of the DePaul University (Chicago, Illinois), a private research university. The DePaul College of Education has developed a range of micro-credentials to 'assist educators in facing the unknown future of teaching and learning.'²²¹

Micro-credentials on offer: The DePaul College of Education's micro-credentials offering covers a range of areas/skills linked to the teaching profession, including (but not limited to):

- Online Teaching Mastery
- Transitioning to the New Post COVID-19 Classroom
- Leading Innovation and Success During Uncertainty
- Navigating the Uncertainty with Social Emotional Competency
- Antiracist Curriculum and Instruction²²²

- Assessment Expert
- Global Educator
- Value-Creating Education for Global Citizenship
- Innovative Leadership
- Mindful Leadership
- STEM Expert
- Transformational Teaching²²³
- Social Emotional Learning
- Empathy Driven Teaching
- Innovative Remote Teaching Practices.²²⁴

Main purpose/type: Professional development, experience-focused.

Assessment methods: No publicly available information was found with regard to the assessment methods used in DePaul College of Education's micro-credential courses.

Platforms/websites: Unclear – no publicly available information was found regarding the platform the DePaul College of Education uses for their micro-credentials, nor the award type they lead to.

Award type: Unclear – no publicly available information was found regarding the award type that DePaul College of Education micro-credentials lead to.

Credit-bearing: No – non-credit certificates.²²⁵

Stackability/portability: Micro-credentials are explicitly 'not-credit' certificates, so they cannot be stacked towards larger academic degrees. They do, however, lead to professional development micro-certificates that have value in themselves and can be stacked in an individual's CV.²²⁶

Quality assurance: No publicly available information was found on DePaul College of Education's quality assurance processes around micro-credentials.

Costs: Variable depending on the course. For example, the 'Value-Creating Education for Global Citizenship' micro-credential costs USD 4,800, consisting of four USD 1,200 courses.

4) Friday Institute at NC State

The William & Ida Friday Institute for Educational Innovation at NC State University (henceforth: the Friday Institute) (Raleigh, North Carolina) seeks to advance K-12 education 'through innovation in teaching, learning and leadership' and by 'foster[ing] collaborations that improve education for all learners'.²²⁷ The institute places a focus on learner variability in the classroom, recognising that 'educators welcome an incredibly diverse set of students [with their own unique background, set of experiences, interests, strengths, and challenges] into their classrooms daily'.²²⁸

Micro-credentials on offer: The Friday Institute also hosts their micro-credentials via the Digital Promise platform. Some of the topics covered include (though are not limited to):

- Collaboration, Communication, Creativity, and Critical Thinking to Support Student Learning in a Digital Learning Environment
- Apply Student-Centred Strategies to Support Learning Differences
- Attention
- Auditory Processing
- Build a Student-Centred Plan to Support Learning Differences
- Emotional Regulation
- Foundations of Practice in Learner Motivation
- Responsible Decision-Making
- Inhibition
- Relationship Skills.²²⁹

Main purpose/type: Professional development, experience-focused.

Assessment methods: Assessment typically happens through self-reflective practice.

Platforms/websites: Digital Promise.

Award type: Badges.

Credit-bearing: Sometimes – both academic and professional credit.

Stackability/portability: Some micro-credentials bear academic credit and can be stacked towards wider degrees:

‘Each [module] could be taken independently – in any order – for a single credit, or ‘stacked’ to satisfy the three-credit course requirement for a degree.’²³⁰

In other cases, micro-credentials can bear Continuing Education Unit (CEU) credits and contribute towards professional accreditation.

Quality assurance: No publicly available information was found specifically on Friday Institute’s quality assurance processes around micro-credentials. However, the institute is accredited at the US regional level, by the Southern Association of Colleges and Schools Commission on Colleges. Also, the micro-credentials are included in the Digital Promise platform, which requires issuers to meet certain criteria – see [section 5.7](#) on Quality Assurance for more information.

Costs: Micro-credentials typically cost USD 34 per course.

5) Harvard Extension School

The Harvard Extension School is Harvard University (Cambridge, Massachusetts)’s continuing education school. It furnishes ‘advanced learning [certificates] in a range of topics in sustainability, business management, and technology [which help students to] deepen their existing knowledge and provide momentum for future growth.’²³¹

Micro-credentials on offer: Harvard Extension School's micro-credentials cover the following fields/topics:

- Project Management Methodologies
- Circular Economics
- Regenerative Agriculture
- Database Management
- Data Modeling and Ethics.²³²

Main purpose/type: Content-focused, academic.

Assessment methods: Micro-credentials (here micro-certificates) are awarded after the completion of coursework for the selected courses. It may be assumed that a form of testing is embedded within these learning assignments, although the exact assessment methods used are not specified.²³³

Platforms/websites: Harvard Extension School's own website.

Award type: Certificate.

The microcertificate curriculum 'consists of a small set of two to five tightly curated courses', from which learners select two. To earn the certificate, learners 'complete the two courses at the graduate level, with a grade of B or higher, within one year.'¹

Credit-bearing: Yes – academic credit.

Stackability/portability: Micro-credentials can be used as credit towards larger study programmes at Bachelor's degree level and above.

Quality assurance: No publicly available information was found on Harvard Extension School's quality assurance processes around micro-credentials.

Costs: Each certificate requires the completion of two micro-credentials. Together, the costing for these courses comes to 6,440 USD.²³⁴

6) Institute for Personalized Learning

The Institute for Personalized Learning (i4PL) (Pewaukee, Wisconsin) 'hosts micro-credentials that allow for an opportunity to earn recognition for the specific skills and competencies that [educators] have learned throughout their careers.'²³⁵

Micro-credentials on offer: Micro-credentials at the i4PL are offered on the Digital Promise platform and 'focus on specific skills related to learner-centered practice,' including:

- Using the Honeycomb as a Change Strategy
- Standards-Guided Learning
- Personal Learning Goals
- Learner Profile
- Proficiency-Based Progress
- Customized Learning Paths

- Understanding a Learner-Centered Design.²³⁶

Main purpose: Content-focused, academic.

Assessment methods: Primarily reflective practice.

Educators 'enroll, reflect on their practice, submit the required evidence of learning, and have it assessed by a trained reviewer who will determine if the evidence meets established criteria.'²³⁷

Platforms/websites: Digital Promise.

Award type: Badges.

Credit-bearing: No.

Stackability/portability: No publicly available information was found regarding the stackability/portability of the Institute for Personalized Learning's micro-credentials.

Quality assurance: No publicly available information was found specifically on Institute for Personalized Learning's quality assurance processes around micro-credentials. However, inclusion in the Digital Promise platform requires issuers to meet certain criteria – see [section 5.7](#) on Quality Assurance for more information.

Costs: Micro-credentials costing range from being free of charge to USD 25.

7) Nova Academy

The Nova Academy (Belgium) is an initiative by the universities of Ghent, Antwerp, and the Free University Brussels to promote lifelong learning. It seeks to 'strengthen lifelong learning in Flanders, with projects including multiple joint training initiatives [including] short-term learning programmes.'²³⁸

Micro-credentials on offer: The Nova Academy lists a range of different micro-credentials from across its three constituent universities. Topic areas include:

- Sustainability
- Law and Sustainability
- China in Context
- Data Analysis in R: Basic and Beyond.²³⁹

Main purpose: Content-focused, academic.

Assessment methods: Typically a combination of oral and written examinations.²⁴⁰

Platforms/websites: Nova Academy website, partner institutions' websites.

Award type: Certificate.

Credit-bearing: Yes – academic credit.

Stackability/portability: Micro-credentials can be used as credit towards larger study programmes at Bachelor's degree level and above.

Quality assurance: No publicly available information was found specifically on Nova Academy's quality assurance processes around micro-credentials. Universities are accredited in-country by the Dutch-Flemish Accreditation Organisation.²⁴¹

Costs: Costed per credit, at EUR 37.50 each credit. A 10-credit micro-credential course will cost EUR 375.²⁴²

8) SUNY Buffalo State

SUNY Buffalo State is a public research university in Buffalo, New York. It has developed over 70 micro-credentials which are available to current students, prospective students or industry professionals. SUNY Buffalo State's micro-credentials offering combines 'courses from [their] registered degree programmes, applied learning experiences, and preparation for industry certifications.'²⁴³

Micro-credentials on offer: SUNY Buffalo State offers a long list of more than 70 micro-credential courses. Some of the topics covered include:

- Applied Creative Thinking and Problem Solving
- Data Management and Storytelling
- Creative Education – Innovative Learning, Thinking, and Problem Solving
- Programmatic Organizational Development.²⁴⁴

Main purpose: Content-focused, academic.

Assessment methods: A micro-credential 'could be coursework alone ([...] three courses), a series of workshops, or a combination of coursework and an applied learning experience or certification preparation.'²⁴⁵

Platforms/websites: SUNY Buffalo State's own website.

Award type: Certificate.

Credit-bearing: Yes – academic credit.

Stackability/portability: Micro-credentials can be used as credit towards larger study programmes at Bachelor's degree level and above.

Quality assurance: No publicly available information was found specifically on SUNY Buffalo State's quality assurance processes around micro-credentials.

Costs: Regular tuition fees apply, with no extra costs.²⁴⁶

9) **Teacher Career Pathways**

Teacher Career Pathways' (New York) Teacher Leadership micro-credentials are 'designed to support teacher leaders in reflecting on key elements of the five areas of instructional leadership.'²⁴⁷

Micro-credentials on offer: 'Teachers select one area of instructional leadership to focus on for their learning experience.'²⁴⁸

Main purpose: Professional development, experience-focused.

Assessment methods: Typically self-reflective practice, peer activities, and menteeship

Platforms/websites: Unclear – no publicly available information was found regarding the platform the Teacher Career Pathways uses for their micro-credentials, nor the award type they lead to.

Award type: Unclear – no publicly available information was found regarding the award type that Teacher Career Pathways micro-credentials' lead to.

Credit-bearing: Yes – professional credit.

Stackability/portability: No publicly available information was found regarding the stackability of micro-credentials by Teacher Career Pathways.

Quality assurance: No publicly available information was found specifically on Teacher Career Pathways' quality assurance processes around micro-credentials.

Costs: No publicly available information was found regarding the cost of Teacher Career Pathways micro-credentials.

5.2 Definitions

Before delving deeper into the different micro-credential offerings at each of these respective issuing organisations, it is important to note the diverse understanding and approaches they put forward in conceptualising micro-credentials.

As discussed earlier, the current proliferation of micro-credential offerings led to a wide variety of conceptual definitions of what exactly these education and training programmes are.

Table 7. Selected issuing organisations' definitions of micro-credentials

Issuing organisation	Micro-credential definitions
Childhood Education International	<i>"Micro-credentials are competency-based assessments of an educator's areas of expertise. They are rigorous, self-paced professional development opportunities for educators who are looking for PD that builds from their own context. Micro-credentials are a way for teachers to personalize professional development and demonstrate their teaching competencies."</i> ²⁴⁹

Clark County Educators Association	<i>"Micro-credentials are competency-based, enabling educators to be recognized for the knowledge and skills they use to be successful in their field."</i> ²⁵⁰
DePaul College of Education	<i>"[Micro-credentials] [...] provide teachers with knowledge, skills, [practical tools] and self-awareness needed to engage in a new modality of teaching."</i> ²⁵¹
Friday Institute at NC State	<i>"Micro-credentials provide an opportunity for educators to engage in rigorous, self-paced, job-embedded professional learning that is connected to the daily skills teachers need in their classrooms. This new wave in professional learning provides a way for teachers to earn recognition for the skills they acquire through formal and informal learning opportunities, to personalize their professional learning that meets their needs, and to take what they learn and apply it to their classrooms."</i> ²⁵²
Harvard Extension School, Harvard University	<i>"A microcertificate offers a set of short, competency-based courses designed to help you build and demonstrate mastery in a given area. [...] By earning a microcredential, you demonstrate proficiency in academic knowledge and in real-world applications, adding immense value to your experience and professional acumen."</i> ²⁵³
Institute for Personalized Learning	<i>"Micro-credentials [...] supplement professional development that supports understanding and implementation of personalized learning practices."</i> ²⁵⁴
Nova Academy	<i>"[Micro-credentials] are small, brief study programmes at an academic level, aimed at acquiring competences. The competences that you will develop through a given programme are specified in advance and an evaluation at the end of the programme will gauge whether you have acquired them."</i> ²⁵⁵
SUNY Buffalo State	<i>"Microcredentials verify, validate, and attest that specific skills and/or competencies have been achieved and are endorsed by the issuing institution, having been developed through established faculty governance processes and designed to be meaningful and high quality."</i> ²⁵⁶
Teacher Career Pathways	<i>"The [micro]-credential process is a unique online experience whereby educators establish their learning intentions and goals, personalize the activities they will engage in, draft comprehensive reflections, engage multiple times with a professional learning community, and partner with a leadership coach. Successful completion yields many benefits including a digital micro-certification that educators can use to showcase the skills they have developed throughout their career."</i> ²⁵⁷

While these definitions once again show a wide range of understanding and approaches towards micro-credentials, from a functional perspective, there is some agreement on the nature and function of these types of awards.

A functional understanding of micro-credentials, based on the above descriptions, then, leads to the understanding of micro-credentials as professional development that is:

- Short-term
- Competency-based
- Self-paced
- Job-embedded or supplemental
- Leading to particular certificates or badges.

It is also interesting to note that, for example, the DePaul College of Education does not list a general definition of micro-credentials, but only notes course-specific descriptions of what a particular micro-credential intends to do. This issuing organisation understands micro-credentials as featuring a focus on:

- Knowledge and skills: the regular education and training aspect, as can be expected in professional development
- Practical tools: the practical aspect, where knowledge and skills are put into actual practice
- Self-awareness: a self-reflective aspect, where existing professionals think through their existing practice and how it may have to evolve to keep up with current developments.²⁵⁸

The various definitions of micro-credentials address different elements and purposes of this type of awards.

5.3 Purposes of Micro-credentials for Educators

This section discusses the main types, purposes and focuses of micro-credentials for educators offered by the nine micro-credential issuing organisations reviewed in this study.

As highlighted in [section 4.3](#), a distinction can be made in the way in which micro-credentials are positioned. With regards to what is certified, these certifications can either be:

- **Experience-focused:** assessing previous experience and recognising post-education development, demonstrating enhanced education and training through professional development and learning
- **Content-focused:** education and training content developed separately or unbundled as part of a micro-credential programme, supporting academic entry or enhancing a prior degree.

Table 8. An overview of the different foci of micro-credentials at selected issuing organisations

	Experience-focused	Content-focused
Childhood Education International	✓	
Clark County Educators Association	✓	
DePaul College of Education	✓	
Friday Institute at NC State	✓	
Harvard Extension School		✓
Institute for Personalized Learning		✓
Nova Academy		✓
SUNY Buffalo State		✓
Teacher Career Pathways	✓	

Recognising professional teaching experience

For Childhood Education International (CE International), micro-credentials are “competency-based assessments of an educator’s areas of expertise.”²⁵⁹ This sentiment is echoed by Clark County Educators Association, whose micro-credentials similarly aim to acknowledge and honour teaching expertise.²⁶⁰

In turn, the DePaul College of Education also explicitly offers micro-credentials that equip educators with the knowledge and tools to tackle the “complex themes of race and inequity, [as well as] the unknown future of teaching and learning.”²⁶¹

The Friday Institute developed micro-credentials which are self-directed, job-embedded, competency-based, as well as research-based.²⁶² While this particular understanding aligns itself more closely with a traditional understanding of micro-credentials, the Friday Institute’s approach towards micro-credentials notably sets itself explicitly against “short, one-size-fits-all workshops with ongoing and job-embedded aspects that support the impact in the classroom.”²⁶³

From a professional development point of view, this assertion points towards the innovative nature of micro-credentials, particularly when applied to professional development in the teaching profession. Via micro-credentials, educators are able to pursue professional learning that:

- Recognises their expertise
- Allows for personalised further training
- Demonstrates how these educators may apply new knowledge in their classrooms.²⁶⁴

The Institute for Personalized Learning takes this one step further, emphasising the “proficiency-based” nature of these kinds of micro-credentials. This leads to a particular understanding of micro-credentials as recognising the lifelong learning that an educator is engaged in, and how it is applied in practice.²⁶⁵

Teacher Career Pathways (TCP) similarly provides a platform for teaching professionals to reflect on their practice. In so doing, learners pursuing the TCP micro-credentials create a body of evidence, certifying knowledge and expertise to develop educational leadership in their field. This evidence is then assessed and certified without the need to take an additional course. In particular, Teacher Career Pathways allows entry to and progression in the following roles, each leading to a greater salary addition.

- Model Teachers: ‘highly skilled educators with a passion to lead adult learning through their laboratory classroom’
- Peer Collaborative Teachers: ‘highly skilled educators with a passion to support many aspects of school-wide growth [...] and [to support] their colleagues their colleagues through focused mentoring or coaching, structured intervisitation initiatives, collaborative teacher teams, and/or designing meaningful opportunities for professional growth’
- Master Teachers: ‘teachers who are driven to impact both local school culture and broader campus or district level systems and structure. [They] promote critical reflection on instructional practices, in order to increase effectiveness for diverse groups of students [and] support their colleagues through focused mentoring and coaching.’²⁶⁶

While assessment of previous knowledge and expertise is one marked area of micro-credentials, particularly as they are delivered by educator training providers, there are also an increasing number of micro-credentials available, offered by universities and other similar

institutions. These particular types of micro-credentials are more typically aimed at acquiring new knowledge and skills.

Academic micro-credentials

Outside of a direct focus on professional development, micro-credentials on offer within academia often posit a direct connection with existing curricula. In other words, micro-credentials may be derived from an existing degree programme and presented as a single module. Of course, here again, concerns of learning fragmentation ought to be considered (see above).

At SUNY Buffalo State, for example, micro-credentials are typically unbundled from existing courses (see above), or newly developed as applied learning experiences or a series of workshops. These credentials may then be stacked towards initial, or advanced degrees.²⁶⁷ Micro-credentials at the Nova Academy are similarly existing modules of wider degree programmes at their respective universities that are offered to learners.²⁶⁸

Another interesting consequence of embedding micro-credentials in wider academic journeys is underscored by the Harvard Extension School. In this context, micro-credentials not only demonstrate proficiency in particular topics of study, but also provide “momentum for future growth”.²⁶⁹ Micro-credentials are here, again, identified as a primary driver of contemporary professional development, in as much that they expose learners to wider areas of growth in a limited, introductory fashion.

Summary

Overall, the empirical data shows, much more than the conceptual literature on the topic of micro-credentials, that two types of micro-credential awards are in existence. Micro-credentials offered by educator training providers, trade unions, and similar organisations, are typically aimed at the development of practicing professionals (here: educators). However, there are also micro-credentials offered by universities – these are more typically aimed at either easing access via credit transfer, or the enhancing of a previous degree.

At present, there is still little evidence of direct transfer to academic degree programmes at universities for holders of micro-credentials. Particularly where experience-focused certifications are concerned, these micro-credential awards are predominantly aimed at professional learning and development in existing professions. However, current advances in the field of skills profiling (and *skillification*, see above) could potentially make these types of transfers possible.²⁷⁰

5.4 Assessment Methods

This section discusses the different assessment methods adopted by the nine micro-credential issuing organisations reviewed in this study.

Table 11. An overview of assessment formats of selected micro-credential issuing organisations

	Format	Examples
Childhood Education International	Multiple methods	Teaching demonstration, self-reflective practice, writing prompts.
Clark County Educators Association	Self-reflective practice	Portfolio evidence of prior knowledge and expertise.
DePaul College of Education	Unclear*	Unclear.*
Friday Institute at NC State	Self-reflective practice	Portfolio evidence of prior knowledge and expertise.
Harvard Extension School, Harvard University	Multiple methods	Coursework. ²⁷¹
Institute for Personalized Learning	Self-reflective practice	Portfolio evidence of prior knowledge and expertise.
Nova Academy	Multiple methods	Combination of oral and written examinations.
SUNY Buffalo State	Multiple methods	Coursework, workshops, applied learning experience, certification preparation.
Teacher Career Pathways	Multiple methods	Self-reflective practice, peer activities, menteeship.

*No publicly available information was found regarding the assessment methods used in DePaul College of Education's micro-credential courses.

One of the distinguishing factors of micro-credentials is that, while educational and/or training content may be studied, some micro-credentials are designed to allow for professional experience to be appropriately credentialed without the need to complete an additional package of education and training. Micro-credential short courses or assessments aimed at educators, in particular, often fall under this second category – that is, the skill-based assessment of teaching expertise.²⁷² This impacts the design of micro-credentials, particularly when it comes to assessment methods.²⁷³

Professional development / experience-focused micro-credentials

Micro-credentials with a primary focus on professional development and professional experience tend to require learners to complete a set of self-reflective assessment tasks (deliverables) based on their own experience, circumstances, and particular challenges they face in professional settings (e.g. for teachers, this is often the classroom). The professional development, provided through micro-credentials, may then empower educators to “learn and demonstrate timely, relevant knowledge and skills that immediately help them in their classroom and in their career.”²⁷⁴

These reflective assessment approaches are adopted by Childhood Education International, the Clark County Education Association, and the Teacher Career Pathways. The Friday Institute, which offers their micro-credentials via the Digital Promise platform, similarly demonstrates a highly reflective assessment method, requiring learner to complete a survey on their:

- Professional background
- Organisation (employers)
- Objectives upon enrolment and completion of the course.

During such courses, learners are then asked to apply the content learned to their own teaching context and students, as well as to engage in a highly collaborative environment with their peers.²⁷⁵ As described by the Digital Promise platform, micro-credentials are, thus, used to support lifelong learning, “providing educators with recognition for the *skills they develop throughout their careers*, regardless of where or how they learned them. Micro-credentials are: [competency based; research-backed; personalized; on-demand]” (emphasis by author).²⁷⁶

These self-reflective practices play a crucial role in educator micro-credentials as they allow professionals to (re)engage with developments in their field, critically reflect on their own knowledge and teaching practice, and take ownership of their career progression journeys through the following aims:

- Goal setting
- Evidence collection
- Reflective writing
- Feedback (peer review).

Unpacking this further, a self-reflective assessment of educator micro-credentials typically involves the evaluation of a professional teacher’s ability to critically examine their own teaching practices, identify areas for professional learning and development, as well as pursuing strategies for growth (here: via micro-credentials). The different methods used can include:

- Documentation and portfolio creation: focusing on self-assessment of one’s own teaching practice in context
- Peer observation and feedback: demonstrating teaching practice to small groups of peer teachers, who provide feedback and suggestions
- Reflective journals: to engage in ongoing self-reflection and growth, which may be further assessed
- Structured reflection: via further group discussions, conducted guided prompts or in the form of workshops.

Academic micro-credentials

By contrast, the university-based micro-credential issuing organisations reviewed here employed more traditional assessment methods, differentiating between written and oral exams, or the writing of an essay or wider research task.²⁷⁷ While self-assessment and peer feedback may also be encouraged in this context, the emphasis remains on external evaluation by instructors, as opposed to self and peer-evaluation.

Summary

Overall, the majority of the micro-credential offerings that are reviewed here demonstrate a predominantly self-reflective assessment practice. From a professional development perspective, this approach is useful, as it shows that greater weight is given to the recognition of prior learning and experience. At university-level, micro-credentials are still typically treated as regular modules, albeit ones that take place over a shorter period of time.

5.5 Platforms and Websites

This section discusses the different host platforms and repositories (e.g. websites) that the nine selected issuing organisations in this study use to make their micro-credential courses accessible to learners.

Table 9. Overview of micro-credential host platforms/websites used by selected issuing organisations

	Platform / website
Childhood Education International	Digital Promise
Clark County Educators Association	Digital Promise
DePaul College of Education	Unclear*
Friday Institute at NC State	Digital Promise
Harvard Extension School, Harvard University	Harvard Extension School website
Institute for Personalized Learning	Digital Promise
Nova Academy	Nova Academy website
SUNY Buffalo State	SUNY Buffalo State website
Teacher Career Pathways	Unclear*

*No information was publicly available regarding what platform DePaul College of Education and Teacher Career Pathways uses for their micro-credentials.

For ease of discussion, and referring back to the wide ecosystem of stakeholders involved in the micro-credentialing space, it is helpful to distinguish between:

- **Issuing organisations and/or developers:** these can be either educator training providers, universities, or other issuers of education and training at the level of micro-credentials. They develop short-term learning opportunities based on their institutional vision, or industry niche.
- **(Digital) platforms or repositories:** frequently developed by edtech or other related companies, these platforms allow for micro-credential issuing organisations to offer their short-term learning opportunities to the public.

Host platforms

Issuers of micro-credentials typically offer these awards through a host digital platform, such as Digital Promise's educator micro-credential ecosystem.²⁷⁸ Given the nature of micro-credentials as digital credentials,²⁷⁹ this online provision is an essential element that allows for personalised, on-demand learning and training.

Within the landscape of micro-credentials for teacher professional development specifically, the [Digital Promise](#) platform – a US-based non-profit organisation, also known as the National Center for Research in Advanced Information and Digital Technologies – was found to be the most popular among the issuing organisations reviewed in this study.

Other platforms also presently offering educational micro-credentials from various issuers include Coursera, EdX, FutureLearn, Kadenze, and Udacity. These are all prominent online learning platforms offering a wide range of courses and micro-credentials. They share similarities in providing access to high-quality educational from universities and other institutions around the globe. The flexible nature of these education and training offerings also allows learners to complete courses at their own pace, wherever they may be based. In particular, differences between these platforms may be summarised as follows:

- **Coursera:** emphasises practical skills and industry relevance in its micro-credentials (offering Specialisations)
- **edX:** focuses on high-quality education and academic rigour (offering MicroMaster's programmes)
- **FutureLearn:** provides social learning and collaboration through discussion groups and peer activities
- **Kadenze:** specialises in arts and creative technology courses, providing a platform for learners to explore and create art
- **Udacity:** centres on tech-related fields and emphasises industry relevance and career readiness (offering Nanodegree programmes).

The Nova Academy, too, is an example of note in this scene, in that it acts as a host digital platform for micro-credentials offered by the universities that form its consortium (i.e. Ghent University, Vrije Universiteit Brussel and University of Antwerp).

There are various potential benefits of using host digital platforms like those above-mentioned to make micro-credentials accessible to the public. Such platforms are often user-friendly and feature a homepage that allows them to explore all micro-credentials currently offered by various issuers, allowing them to choose based on topic, issuing organisation, length of course, among other factors. These platforms often also have embedded user verification (useful for issuing organisations) and allow learners to track their progress (useful for both learners and issuing organisations). That said, these platforms may require issuing organisations to meet certain criteria to qualify for submission, and may impose certain requirements – both from a quality perspective and from a brand, design and style point of view (see [section 5.7](#) for more information).

Organisational websites

While, as mentioned above, many of the issuing organisations in this study host their micro-credentials in host digital platforms, some universities and other education and training institutions choose to host their micro-credentials on their own institutional websites/ internal platforms. This is the case with the Harvard Extension School and SUNY Buffalo State, for example, who appear to host their micro-credential courses directly on their institutional websites/internal platforms.

Advantages of this option, when compared with using a host digital platform, include that it allows issuing organisations to more directly leverage their reputation and brand name to emphasise the high standards of the micro-credentials courses offered. This option may also allow for more control over integration with existing education programmes. That said, the micro-credentials themselves may be more difficult to locate by potential users when

compared with the more comprehensive and centralised catalogue that host digital platforms offer.

Summary

Overall, the online provision of micro-credentials typically takes place through a digital platform (here, predominantly, Digital Promise) made specifically to host micro-credentials, short courses and other educational content by various issuing organisations. That said, universities and other issuing organisations may also offer micro-credentials on their own websites and/or internal platforms if they wish to more directly leverage their reputation to emphasise quality standards and maintain greater control over integration with their existing educational offerings.

5.6 Awards, Credits and Stackability/Portability

This section discusses the nine selected micro-credential issuing organisations reviewed in this study with regard to the award types, credit-bearing status and stackability/portability of their micro-credentials.

As shown by table 11 below, a distinction can be made between:

- **University-based (academic) micro-credentials**, typically leading to credit transfers onto degree programmes at Bachelor's degree level and above
- **Professional learning and development micro-credentials**, typically leading to one or more badges which may be displayed on an individual learner's CV, digital portfolio or social media.

These distinctions are explored below in relation to awards, credit and stackability.

Table 11. Award types, credit-bearing status and stackability of micro-credentials of selected issuing organisations

	Awards	Credits		Stackability	
	Award type	Are micro-credentials academic credit-bearing?	Are micro-credentials professional credit-bearing?	Are micro-credentials stackable?	Stackability type
Childhood Education International	Badge	No	No	Unclear***	N/A
Clark County Educators Association	Badge	No	Yes	Yes	Micro-credentials have standalone value or may be stacked within CCEA's Professional Growth System.
DePaul College of Education	Certificate	No	No	No	Micro-credentials are explicitly 'not-credit' certificates, so they cannot be stacked towards larger academic degrees. They do, however, lead to professional development micro-certificates that have value in themselves and can be stacked in an individual's CV.
Friday Institute at NC State	Badge, Certificate	Sometimes	Sometimes**	Yes	Micro-credentials have standalone value, but can also carry academic credit (contributing towards a larger degree) or professional credit (contributing towards professional accreditation).
Harvard Extension School, Harvard University	Certificate	Yes	No	Yes	Micro-credentials have standalone value or may be stacked towards larger study programmes at Bachelor's degree level and above.
Institute for Personalized Learning	Badge	No	No	Unclear***	N/A
Nova Academy	Certificate	Yes	No	Yes	Micro-credentials have standalone value or may be stacked towards larger study programmes at Bachelor's degree level and above.
SUNY Buffalo State	Badge, Certificate	Yes	No	Yes	Micro-credentials have standalone value or may be stacked towards larger study programmes at Bachelor's degree level and above.
Teacher Career Pathways	Unclear*	No	Yes	Unclear***	N/A

*No publicly available information was found regarding the award types offered by Teacher Career Pathways for their micro-credentials.

**For example, the MCIC (Micro-credentials: Innovations in Classrooms) allowed participating educators from the Southeast Education Alliance to earn renewal Continuing Education Unit credits (CEUs) on certain topics.²⁸⁰ However, it is not clear from the publicly available documentation whether this is the case for every micro-credential.

***No information was publicly available regarding the stackability of micro-credentials by Childhood Education International and Teacher Career Pathways.

Award types

Badges are by far the most popular award type/credential awarded by the issuing organisations reviewed in this study. In fact, all organisations reviewed that host their micro-credentials on the Digital Promise platform – i.e. Childhood Education International, Clark County Educators Association, Friday Institute at NC State and Institute for Personalized Learning – issue badges as a signal of achievement.

As defined earlier in this report, digital badges are visual representations of the achievement associated with micro-credentials²⁸¹ – be it of a particular skill or an educational/training course. Where such badges include metadata about the learner, the issuer, the criteria and the evidence, they can function as digital credentials.²⁸² They are portable – in that they can be shared on social media and digital portfolios – and can be sometimes be stacked (see below) to demonstrate a broader set of skills.

Other award types can be offered on completion of a micro-credential, however. In fact, the issuing organisations in this study who adopt a more academic, content-focused approach to micro-credentials – namely Harvard Extension School, the Nova Academy university consortium, SUNY Buffalo State, and the Friday Institute by NC State – all issue certificates to learners. This is in line with a more formal and academic approach to recognition of skills – certificates tend to be less portable (or stackable), but more formal and authoritative forms of recognition.

Credits and Stackability

Linked to the notion of awards is the concept of credits. Traditionally, in academic settings, credits are awarded upon completion of a block or unit of learning (e.g. a module). They effectively function as a standardised currency of learning, on which courses and wider degrees are built. This type of credit allocation is rarer in industry settings and, where it exists, it aims to contribute towards professional development – not academic degrees.

From the nine micro-credential issuing organisations reviewed in this study, less than half – all of which operating in the higher education space – offer some credit-bearing micro-credentials: Harvard Extension School, Friday Institute at NC State, Nova Academy (a university consortium) and SUNY Buffalo State. This is somewhat unsurprising given the nature of the micro-credential courses they offer; often, these assume the form of so-called curricular micro-credentials – i.e. smaller repackaged modules/courses from a wider degree programme. Given their design – which ensures they fully align with existing educational offerings – such micro-credentials lend themselves particularly well to academic credit-bearing status and stackability.

Harvard Extension School's micro-credentials, for example, can easily be stacked towards wider graduate certifications – e.g. a learner can start by completing a micro-credential in Project Management (which requires the completion of two courses) and then complete another micro-credential (i.e. another two courses) to obtain the four-course Project Management Graduate certificate.

A similar approach is followed by SUNY Buffalo State, where the stackability of the micro-credentials specifically aims to form 'a bridge toward a certificate or full degree'.²⁸³ In the case of Nova Academy, credits can also be accumulated per micro-credential course completed

and endlessly stacked by the earner, although there is no mention of the credits being used towards a wider degree.

At the Friday Institute by NC State, micro-credential offerings are comprised of stacks consisting of several micro-credentials each. This presents as “scaffolded pathway” for teachers to integrate the content into their own classroom practice.²⁸⁴ Notably, the Friday Institute states that credit earned within micro-credential programmes testifies to the knowledge and expertise earned, rather than demonstrating “hours [...] spent in a seat.”²⁸⁵ Although it is unclear from publicly available information whether this is always the case, credits for at least some of the micro-credential programmes have been expressed in Continuing Education Units (CEUs), ranging from 1 to several CEUs per stack (1 CEU is comparable to ten clock hours of professional development). A certificate is also readily available upon completion. For context, in the US state of North Carolina, a total of 8 CEUs (or eighty clock hours) is required for renewal and / or reinstatement of a professional educator’s licence.²⁸⁶

In cases of micro-credentials for continuing professional development, credits and stackability are less frequent, although micro-credentials can be linked to credits required for professional licensing and renewal, such as Continuing Education Units (see paragraph above) or, in the case of Teacher Career Pathways, A+ credits. In most cases, the completion of a set number of credits may lead to promotions and/or a salary differential.²⁸⁷ For example, despite not calling them ‘credits’ as such, Clark County Educators Association uses a system of ‘Contact Units’ in its Professional Growth System (which is intrinsically mapped to a Professional Salary Table), with micro-credentials being allocated a variable number of contact units in that system.

That said, the pursuit of micro-credentials goes much beyond salary increases, to also include:

- Skill specialisations
- Professional recognition and validation (certification)
- Career advancement opportunities
- Network and professional connections
- Pathways to advanced degrees (stackability).

Overall, stackability – a distinguishing aspect of micro-credentials proposed by the literature – is well evidenced in the practices of some of the issuing organisations reviewed, particularly where academic/curricular micro-credentials are concerned. Stackability allows learners to combine different micro-credentials towards predetermined or personalised stacks of learning. Similarly, the credit-bearing nature of some academic micro-credentials, which sets them apart from those focused on professional development, allows for further credit transfer towards wider degrees.

5.7 Quality Assurance

This section discusses the nine selected micro-credential issuing organisations reviewed in this study with regard to publicly available information (or lack of) on the quality assurance processes surrounding the development of their micro-credentials.

Quality Assurance

Descriptions of the quality assurance processes surrounding the creation of micro-credentials are, in the vast majority of cases, absent from the issuing organisations' websites. Where micro-credentials are credit-bearing, and thus stackable towards larger degrees, this can cause recognition issues, particularly when transferring these types of credits across institutions.²⁸⁸

Quality assurance for professional micro-credentials

Information on quality assurance is particularly scarce among the issuing organisations reviewed that provide professional micro-credentials focused on educator training, namely:

- DePaul College of Education
- Childhood Education International
- Clark County Educators Association
- Institute for Personalized Learning
- Teacher Career Pathways.

Descriptions of their quality assurance processes are not publicly available. That said, many do use digital platforms (here, predominantly Digital Promise) to host their micro-credentials and make them accessible for learners. In this sense, inclusion in these platforms can, in itself, signal quality – see below.

Quality assurance for academic micro-credentials

For the academic micro-credentials, too, no publicly available information was found specifically covering the development of micro-credentials courses. Instead, references to quality assurance were made at the wider institutional level, focusing on institutional regional accreditation. This was the case for the:

- Friday Institute at NC State
- Harvard Extension School
- Nova Academy
- SUNY Buffalo State.

The Friday Institute, for example, is externally accredited by the Southern Association of Colleges and Schools Commission on Colleges. Similarly, SUNY Buffalo State is accredited by the Middle States Commission on Higher Education (MSCHE), while the Harvard Extension Schools (which forms part of Harvard University), in turn, is accredited by the New England Commission of Higher Education.

Institutional accreditation by regional accreditors approved by the United States Department of Education supports credibility of the issuing institutions, and, by association, the micro-credentials awarded by such institutions.²⁸⁹ However, the current absence of publicly available information on the internal quality assurance processes surrounding the development of micro-credential courses can make it difficult for learners to fully judge their value.

That said, as mentioned above, many issuing organisations use digital platforms to host their micro-credentials. In this sense, inclusion in these platforms can, in itself, signal quality – see below to some extent.

Digital platforms as a quality assurance mechanism

As mentioned briefly above (and covered in [section 5.5](#) in more detail), many micro-credential issuing organisations host their micro-credentials in third party digital platforms for wider reach and convenience of access for users. Some of these platforms have specific requirements and criteria to allow issuing organisations to host their micro-credentials courses on their platforms – effectively acting as an external quality assurance mechanism.

For instance, Digital Promise – the host platform used by most issuing organisations reviewed in this study who offer micro-credentials for educators – only accepts micro-credentials from issuing organisations with ‘a proven track record in the field of education and substantial content expertise, as well as a commitment to competency-based recognition and learning for educators’.²⁹⁰ Moreover, the 2022 ‘Digital Promise Global Policies and Procedures Micro-credential Program’ document outlines a full list of requirements and procedures that are expected to be followed across the full micro-credential lifecycle for micro-credentials included in the Digital Promise platform, including:

- Micro-credential end user requirements
- Issuer qualifications and requirements (including type of organisation eligible, content expertise and track record, proof of established audience, commitment of competency-based recognition, and application process)
- Assessor requirements
- Requirements on the development and submission of micro-credentials and micro-credential resources
- Requirements on the process used to earn a micro-credential
- Requirements on the evaluation of a micro-credential submission
- Requirements on the award of a micro-credential
- Required compliance with the terms of use and privacy policies applicable to the use of the micro-credential site.

The full 2022 document outlining all policies and procedures can be accessed [here](#).

In this sense, in the micro-credential world, the inclusion in a digital platform that itself imposes certain quality standards and processes – namely around the expertise and track record of the issuing organisation, the development and submission of the specific micro-credentials submitted, and the award of a micro-credential – can act as a quality assurance mechanism in itself when it comes to the micro-credentials hosted by that external party platform.

Inclusion in NQFs

The inclusion of micro-credential offerings into national qualification frameworks is a process that is still ongoing and at very early stages in many national contexts.²⁹¹ However, it may be anticipated that, in future, the credit-bearing nature of micro-credentials will allow for these to be easily mapped to a recognised level of a particular NQF.²⁹² In other words, despite the small volume of study associated with micro-credentials, mapping to NQFs will support wider stakeholder recognition of the level of study a micro-credential corresponds to, and how it may relate to wider degree or professional qualifications at the level.

Summary

Overall, there is currently a quality assurance information gap in the micro-credentials space – both due to the limited inclusion of micro-credentials in qualification frameworks worldwide, and because information on the quality assurance processes followed by micro-credential issuers specifically in relation to the development and maintenance of micro-credentials is scarce.

Particularly with regard to the educator training providers reviewed in this study, it is not always clear how the quality of the education and training received is assured. A similar challenge is visible for universities, for whom quality assurance processes surrounding micro-credential offerings are typically subsumed within the wider quality assurance processes followed by the institution or its programmes. It remains unclear, however, if a repackaged module offered as a micro-credential retains the same quality and value if it is no longer part of a wider degree programme.

In the case of micro-credentials hosted in third-party digital platforms, the procedures and quality standards outlined by the latter can, to some extent, fill the current gap in understanding of quality assurance processes at the micro-credential level. However, to increase transparency for prospective learners, it would be beneficial for micro-credential issuing organisations to share further information on the quality assurance processes they have in place to guarantee the quality of their micro-credential offering. Doing so can also provide further credence to digital certificates and badges issued for their micro-credentials.

5.8 Cost

This section discusses the nine selected micro-credential issuing organisations reviewed in this study with regard to the costs and costing models for their micro-credentials.

Table 12 below provides an at-a-glance overview of the costs, costing models and costing types followed.

Table 12. Costing of micro-credentials by selected providers

	Is there a cost?	Costing model	Cost type	Further information
Childhood Education International	No	-	-	-
Clark County Educators Association	Yes	Cost per course	Fixed	USD 40 per course (when no membership is in place)
		Cost per membership	Fixed	USD 846 for annual membership (cost for micro-credentials included)
DePaul College of Education	Yes	Cost per course	Variable	Price varies per course (example provided in the text below)
Friday Institute at NC State	Yes	Cost per course	Fixed	USD 34 per course
Harvard Extension School, Harvard University	Yes	Cost per course	Fixed	USD 6,440 per credential (which encompasses two USD 3,220 courses)
Institute for Personalized Learning	Sometimes	Cost per course	Variable	Free to USD 25 per course
Nova Academy	Yes	Cost per credit	Variable	Price varies per number of credits – EUR 37.50 per credit
SUNY Buffalo State	Yes	Cost included in tuition fees	Fixed	Price included in tuition fees – no extra cost for registered students.
Teacher Career Pathways	Unclear*	-	-	-

*No publicly available information was found on the costs of micro-credentials offered by Teacher Career Pathways.

As can be noted in the table above, the nature of the micro-credential offerings also has an impact on their costs. In terms of fees, there is again a split between professional micro-credentials, on the one hand, and more academic micro-credentials, on the other.

At the lowest end of the pricing scale from the issuing organisations reviewed in this study is the Childhood Education International, whose micro-credentials are typically free of charge. At the Friday Institute at NC state, the cost of taking a course that leads to a micro-credential is typically USD 34, while the cost of micro-credentials issued by the Institute for Personalized Learning ranges from being free of charge to USD 25 per course taken.²⁹³

In some cases, such as that of the Clark County Educators Association, different costing models apply based on the membership status of those accessing the micro-credentials. In the case of Clark County Educators Association, each micro-credential costs USD 40 for non-members, but the costs for completion of micro-credentials are fully reimbursed for those with membership of the association, which itself costs USD 846 per year.²⁹⁴

In other cases, costing models for non-members may allow learners to access the content of micro-credentials courses free of charge, but are required to pay a fee to receive an assessment and/or a certificate. This is the case with the National Education Association,²⁹⁵ although the latter is not reviewed in detail in this study.

A similar approach is taken by some academic issuing organisations, such as SUNY Buffalo State, where regular tuition fees give learners access to their institution's micro-credentials at no extra cost.²⁹⁶ In this way, tuition fees act as a type of 'membership' fee, which entitles enrolled learners to access micro-credentials free of charge.

That said, most issuing organisations reviewed that offer academic micro-credentials do charge per micro-credential completed. In the case of Harvard Extension School, micro-credentials are not included in tuition fees and cost USD 6,440 per micro-certificate, which includes two USD 3,220 courses. In the case of the DePaul College of Education, the price for each micro-credential varies depending on the specific course taken – for example, the micro-credential course on 'Value-Creating Education for Global Citizenship' costs a total of USD 4,800 and consists of four USD 1,200 courses. The same goes for Nova Academy, although the costing for the latter is not calculated per course, but on a per-credit basis; for example, a micro-credential course worth 10 credits will cost the learner 375.00 EUR (based on 37.50 EUR per credit).²⁹⁷

Overall, differences in the cost of micro-credentials can somewhat be traced to the distinction between micro-credentials for professional development within particular professions – typically offered at relatively low-price points – and academic micro-credentials – typically offered at significantly higher price points, and costed per course or per credit (or, alternatively, offered for free as part of wider academic qualification).

6. Key Findings

This report distinguishes between micro-credentials from a conceptual and functional perspective.

Conceptually, a:

- **‘Credential’** refers to the demonstrated evidence of an individual’s knowledge and expertise which makes them suitable for a particular job. Final degree certificates, university transcripts, and diploma supplements all fall within this category.
- **‘Micro-credential’** is often understood as smaller, more targeted, and more flexible [versions] of traditional credentials.²⁹⁸
- **‘(Digital) Badge’** forms the visual representation of the achievement gained from a micro-credential.²⁹⁹

Functionally, a:

- **‘Digital credential’** (typically in the format of a **digital badge**) is issued ‘in a format that is both human and machine-readable.’³⁰⁰ These types of credentials, in the form of badges containing metadata, are often considered as alternatives to traditional credentials because they provide a different way of demonstrating acquired skills and knowledge.
- **‘Micro-credential’** is aimed at entry to higher or other post-school education and training, continued professional development and/or at expanding the skills achieved during a previous degree study.

Micro-credentials, then, may be:

- **Unbundled**: referring to the breaking down of wider degree programmes into separate, distinct components (typically modules) which are then offered as micro-credentials
- **Non-degree**: referring to certificate programmes below the level of a Bachelor’s, Master’s, or doctoral degree
- **Credit-bearing**: referring to the eligibility of a certificate programme for academic credit (or for professional development/certification)
- **Stackable**: referring to the fact that this academic credit may be applicable towards other certificate or wider degree programmes, each building on the knowledge and skills achieved from preceding credentials.

The review of the micro-credential practices by the selected issuers in this study revealed that key aspects of these definitions are evidenced in their provision of micro-credentials. For example, in the aim and purpose of these various offerings, issuers highlight the role of micro-credentials in supporting:

- Academic entry
- Labour market entry
- Professional learning and development.

Particularly for educator training providers, micro-credentials serve the function of providing an opportunity to either recognise existing knowledge and skills, or to upskill (reskill) and enhance prior expertise.

Types

While most, if not all, of the issuers reviewed in this study seem to agree on the general nature and purpose of micro-credentials, the way in which these short-term (micro) education and training programmes are offered differs. Outcomes associated with these micro-credentials also vary based on the specific issuing organisation.

In essence, a distinction can be made between micro-credentials based on the **type of institution** offering them:

- University-based (academic) micro-credentials, typically leading to credit transfers onto degree programmes at Bachelor's degree level and above
- Professional learning and development micro-credentials, typically leading to one or more badges which may be displayed on an individual learner's CV.

A different way of distinguishing between micro-credentials is to consider their **purpose**:

- Experience-focused: assessing previous experience and recognising post-education development, demonstrating enhanced education and training through professional development and learning
- Content-focused: education and training content developed separately or unbundled as part of a micro-credential programme, supporting academic entry or enhancing a prior degree.

Assessment methods

Particularly for educator training providers, the assessment methods associated with micro-credentials typically allow professionals to (re)engage with developments in their field, critically reflect on their own knowledge and teaching practice, and take ownership of their career progression journeys through the following aims:

- Goal setting
- Evidence collection
- Reflective writing
- Feedback (peer review).

Unpacking this further, a self-reflective assessment of educator micro-credentials typically involves the evaluation of a professional teacher's ability to critically examine their own teaching practice, identify areas for professional learning and development, as well as pursuing strategies for growth (here: via micro-credentials). This can include:

- Documentation and portfolio creation: focusing on self-assessment of one's own teaching practice in context
- Peer observation and feedback: demonstrating teaching practice to small groups of peer teachers, who provide feedback and suggestions
- Reflective journals: to engage in ongoing self-reflection and growth, which may be further assessed
- Structured reflection: via further group discussions, guided prompts or in the form of workshops.

In the case of academic micro-credentials, the assessment methods adopted typically mirror the more traditional assessment methods encountered in degree programmes, such as external examinations and coursework.

Platforms and websites

Micro-credentials issuing organisations make their micro-credentials available to the public in two ways: either by hosting them on a third-party digital platform (e.g. Digital Promise, Coursera, edX, etc.) that offers micro-credentials from different issuing organisations, or by hosting them on their own websites/internal platforms.

Both options have their own advantages and disadvantages (see [section 5.5](#) for more information).

Inclusion in NQFs

Generally, inclusion of micro-credentials in National Qualification Frameworks (NQF) is still rare, though there are some notable exceptions.

The New Zealand Qualifications Authority (NZQA), a national accreditation body, for instance, has recently launched its rebranded New Zealand Qualifications and Credentials Framework (NZQCF) where micro-credentials and other education and training offerings may be pitched to particular levels of the national framework. The NZQA's micro-credential register ensures that all nationally recognised micro-credentials are listed on this external website. Australia, as well, is offering a central *Microcreds Seeker* database (see below). However, these countries are currently the exception, not the rule – in the majority of countries, there is still limited integration of micro-credentials into NQFs.

It may be anticipated that the mapping of micro-credential offerings onto particular levels of respective national qualifications frameworks will further the portability and stackability of these types of awards, across institutions, as well as across countries.

Awards, credits and stackability

The portable functionality of micro-credentials is perhaps one of their most distinguishing factors. Often, micro-credential awards are visually presented by way of a (digital) certificate or (digital) badge, which can be more easily shared (e.g. through digital portfolios or social media) than more traditional degree certificates and diplomas.

Micro-credentials are also characterised by their potential stackability. There are two ways of conceptualising these types of awards:

- Standalone units of learning
- Stackable credentials (credit-bearing / non-credit-bearing).

In other words, a micro-credential may be studied by way of one or more units of learning (i.e. modules). These micro-credentials may then be combined to form a personalised or a predetermined wider package of education and training or count as transfer credit towards larger degree programmes or professional development/accreditation.

However, not all micro-credentials are credit-bearing, particularly where professional learning and development (and its recognition) are concerned. Here, new advances in skills profiling³⁰¹ aim to further ensure that all forms of prior learning and training may be properly recognised, as well as certified through micro-credentials.

Stakeholders involved

The micro-credential ecosystem consists of a wide range of stakeholders, including:

- Individual learners
- Education and training providers
- Companies (employers) and industry
- National accreditation agencies and other official bodies.

In this multi-actor system, accreditation agencies and other official bodies often seek to ensure that education and training organisations comply with national and regional standards. Education and training providers, together with industry, then, set the agenda in terms of what new knowledge and skills are required. Individual learners are, in turn, able to select and personalise their pursuit of (new) knowledge and skills based on this provision of micro-credentials.

However, the rapid proliferation of micro-credential offerings is also leading to a lack of coordination and consolidation in this field of short-term education and training programmes, as evidenced by the large diversity of conceptual definitions and other approaches towards micro-credentials.

Similarly, the ongoing uncertainty about micro-credentials across these different stakeholders reflects the fact that micro-credentials are still a new and upcoming space, with new directions currently being explored.

Quality assurance

Also due to their rapid proliferation, there is currently a significant disparity between regions and industries with regard to the accreditation and quality assurance of micro-credentials. Examples of countries where significant attention has been paid to the accreditation of micro-credentials, as a separate (though aligned) education and training offering distinct from traditional degree/training programmes include:

- Australia
- Ireland
- New Zealand.

Each of these three countries has a strong tradition of short-term education and training courses that are, often, pitched to a certain level of their respective national qualification frameworks. These programmes are, in other words, micro-credentials in all but name.

Such a degree of quality control is available to a lesser extent from the issuing organisations reviewed in this study. For academic issuers of micro-credentials, the quality assurance of their short-term education and training offerings is typically subsumed under the wider, university-level processes for accreditation and quality control. However, where degree programmes are unbundled and presented as separate modules (i.e. micro-credentials), the impact of such learning fragmentation on content and quality remains unclear.

The educator training providers reviewed were found to share even less information about their internal or external quality assurance processes. That said, many of the issuing organisations reviewed do offer their micro-credentials through third party digital platforms

(see below), whose own policies and criteria around issuing organisations and the micro-credentials offered can act as quality control mechanisms in themselves.

Overall, however, there is still generally limited quality assurance information in the micro-credentialing space. The, as of yet, limited inclusion of micro-credentials in national qualification frameworks, as well as the limited information made available by issuing organisations on the development of their micro-credentials, can function as barriers to the wider rollout of this innovative new education and training vehicle.

Current and New Directions

From the review of the literature and of the processes of the selected issuing organisations, the study identified the following as some of the key trends in the micro-credentialing space:

- There is an ongoing flexibilisation of traditional curricula, including the modular provision of courses as micro-credentials
- Via micro-credentials, education and training providers are able to respond more directly to industry needs and provide opportunities for re- or upskilling.

As well as a general trend leading towards the adoption of more flexible learning pathways, this study also documented a number of additional contemporary and emerging trends in the micro-credentialing space. Much more than simply replacing traditional degree programmes or qualifications, micro-credentials are leading to a wider degree of diversification in education and training that is complementary to existing degrees/qualifications.

In particular, the review of the literature and of the processes of the selected issuing organisations revealed that:

- The evolving labour market will continue the pursuit of short-term, certified learning programmes, of which micro-credentials are the mainstay
- The credit-bearing nature is one of the primary distinguishing factors of a micro-credential, particularly in how it relates to (often uncertified and/or non-credentialed) short courses
- New methods of recognising (prior) learning and competences are also being developed, with micro-credentials as the primary vehicle driving this development
- In so doing, the delivery of *certified* education and training to non-traditional learners (particularly on-the-job professionals) presents an excellent opportunity for the further development of micro-credentials
- There exists a continued need to verify an individual learner's personal details, as well as the programme studied as part of a micro-credentials. This verification is typically available via the metadata embedded within a (digital) badge or certificate, or printed as is.

Emerging areas include the:

- The adoption of skills, knowledge, and other forms of expertise through skills mapping and their formal credentialing, often leading to credit transfer onto other education and training programmes.
- Ever greater understanding of the need for accreditation and quality assurance processes which understand micro-credentials as distinct and, therefore, separate from existing degree programmes – even where those micro-credentials were originally part of that wider degree programme.

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