

Draft Preliminary Report
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A conversation starter: Towards a common definition of micro-credentials

This paper was commissioned by UNESCO and drafted by Emeritus Professor Beverley Oliver. The views and opinions expressed in this paper are those of the author and do not necessarily reflect the position of UNESCO or partner organisations that took part in the consultation exercise.

The paper is a preliminary draft for consultation; a final version will be made available in due course.

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Executive summary

Micro-credentials are increasingly promoted as a new and more flexible way of recognising knowledge, skills and competences. Micro-credentials are flourishing with more new brand names constantly emerging. However, acceptance and recognition of micro-credentials by employers and policy makers is hampered because, among other challenges, there is no universally recognised definition that clearly communicates to lay users, particularly learners and employers, what micro-credentials are. In recent years, policymakers, scholars and educators have produced their own definitions, advancing scholarship in the area, and sometimes causing more confusion by adding yet another definition. Other challenges include determining whether micro-credentials complement or replace qualifications, or both; the dizzying array of providers and partnerships in the provision of micro-credentials; the need for robust quality assurance and the conundrum of how to enact it when providers operate outside of the regulated education sector; the lack of research and convincing evidence of micro-credentials' efficacy so far, and the risk of unintended consequences if funding is diverted away from formal systems.

This project set out to address the first of those challenges, coming to a consensus on a proposed definition, in the hope of assisting the field to move towards a common definition. This preliminary report proposes a definition arrived at through a consensus-building process by a global expert panel. The proposed definition (in italics, below) is preceded by an explanatory text, as follows:

Credentials, macro-credentials and micro-credentials

Credentials verify, validate, confirm, or corroborate a person's learning achievements, knowledge and preparedness for performing tasks. Credentials are diverse with regard to their scope, status and purpose.

A large subset of credentials can be referred to as **macro-credentials**: generally, these include degrees, diplomas, certificates and licences, often awarded by accredited, recognised or regulated educational and other institutions or organisations. They indicate learning achievement of a broad body of knowledge, transferable skills or technical proficiency and may take a number of years to complete. While some are pursued for personal or general educational advancement, others are associated with qualifying to practice a particular profession or to follow a particular career path.

Another large subset of credentials can be referred to as **micro-credentials**: these are typically focused on a specific set of learning outcomes in a narrow field of learning and achieved over a shorter period of time. Micro-credentials are offered by commercial entities, private providers and professional bodies, traditional education and training providers, community organisations and other types of organisations. While many micro-credentials represent the outcomes of more traditional learning experiences, others verify demonstration of achievements acquired elsewhere, such as in the workplace, through volunteering, or through personal interest learning. Micro-credentials are often promoted as an efficient way to upskill workers across the lifespan.

A micro-credential:

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

Forty-seven experts, broadly representing diverse regions and education sectors, provided feedback on at least one of three iterative versions of the definition.

The proposed definition is not intended to replace national or regional definitions. It is an attempt to distil what experts “agree that they agree on” so far about micro-credentials. The definition proposed here is intended primarily as a layperson’s umbrella statement and as an international reference point, rather than a replacement, for established definitions. For these reasons, it is generic, and does not specify further elements that may be requirements within specific jurisdictions.

The definition proposed in this paper is therefore not officially endorsed by UNESCO; rather it is the outcome of preliminary study among experts and may be used to inform UNESCO’s formal position in due course.

Forty-seven experts, broadly representing diverse regions and education sectors, provided feedback on at least one of three iterative versions of the definition. Forty-five experts broadly agreed to the above definition with its explanatory text. However, there were areas of divergent thinking: areas where there was less consensus centred on three issues: whether recognition of prior learning should be included; the most appropriate terminology to describe trusted providers (“Competent organisation” and “recognised body” were largely unacceptable to the experts). The need for quality assurance was agreed by all experts – however, there was some divergence of opinion on whether it needed to be explicitly called out in the final phrase of the definition (“meet the standards required by relevant quality assurance”).

This preliminary report is intended to be the beginning of a conversation towards a universal definition rather than the last word: it may be a fair observation that, since the definition proposed here requires an explanatory text, perhaps it is more of a clarifying statement than a definition. Critics could rightly point out that apart from micro-credentials’ focused learning outcomes, all other parts of the proposed definition apply equally to macro-credentials. From conversations with experts, it became clear through this process that qualifications and certifications carried different connotations in different jurisdictions: it was broadly agreed that the term ‘credential’ was more neutral.

Micro-credentials offer exciting possibilities but because it is still early days, the benefits are yet to be realised or proven in many cases. Most agree that further robust research is needed to test efficacy of micro-credentials, including the frequent claim that they offer an efficient way to upskill workers. Any such benefits will need to be weighed against potential unintended consequences if educational funding is diverted from formal systems.

Moreover, there is strong hope that micro-credentials can advance the equity agenda, bringing accessible and affordable focused learning and skill building to vulnerable communities, enabling achievement of the United Nations Sustainable Development Goal 4 (Quality education). Again, sustained outcomes are not yet measurable in more recent projects, particularly amid a pandemic. A subsequent version of this report will include case studies that showcase micro-credentials intended to improve learners’ circumstances, including those displaced or affected by the pandemic-related health and economic crises; refugees, displaced

persons, asylum seekers and underserved communities as well as those who seek assistance to find or secure work in new and emerging industries.

Attempting to achieve consensus on the definition proposed here with over forty experts from all sectors and parts of the globe has been a challenging and richly rewarding exercise in a short time frame. More experts now need to be included in the conversation, representative of all jurisdictions and sectors. Experts with commercial interests in micro-credentials also need to be brought into the conversation, as do the most important group - lay users such as learners across the lifespan, and employers.

It is hoped that this initial step towards a commonly agreed definition of micro-credentials will move the field forward and meet other challenges that need solving. Chief among these is quality assurance. This exercise showed that experts are staunch in their agreement that quality assurance is required—but including it in a definition does not resolve how it can be done. That the proposed definition shows there are a few real differences between macro and micro-credentials may underline the quality assurance message: that is, for micro-credentials, *micro* is the distinguishing feature, but to be accepted and trusted, micro-credentials must be seen to bear the hallmarks of quality *credentials*.

Education changes lives, and micro-credentials, done well, can be a force for good as part of or to supplement and complement formal education systems, and prepare a wider range of learners across the lifespan for better lives and healthier communities. A much-needed step towards advancing these outcomes for all, including the most vulnerable, is to agree on how best to define micro-credentials in ways they are easily and universally understood. This report suggests a first step in this conversation.

1. Introduction and background to the project

Micro-credentials are increasingly promoted as a new and more flexible way of recognising knowledge, skills and competences. Even though new types and business models of micro-credentials are proliferating, learners and employers can be slow to accept them. Acceptance is largely based on trust and value, and these will continue to be hampered while there is no commonly agreed definition that clearly communicates what micro-credentials are. In recent years, policymakers, scholars and educators have produced their own definitions, advancing scholarship in the area, yet sometimes causing more confusion by adding yet another definition. In the meantime, learners and employers can become increasingly bewildered.

Based on numerous surveys and studies, it appears that micro-credentials are not well-understood, and particularly by employers (MicroHE 2019, Kato, Galán-Muros et al. 2020) partly because employers were unfamiliar with the term (Cirlan and Loukkola 2020), and because micro-credentials can take a multitude of forms (Gallagher 2018). To date, definitions and taxonomies to structure these new credentials have not been widely agreed (Resei, Friedl et al. 2019, Beirne, Nic Giolla Mhichíl et al. 2020, Kato, Galán-Muros et al. 2020, Presant 2020), and this is seen as a key barrier to progress towards a trusted skills currency (European Commission 2020). Furthermore, not everyone agrees on what the term micro-credentials includes: micro-credentials could be certificates (academic certificates awarded by educational institutions; professional/industrial certificates which are awarded by professional bodies, industries or product vendors); micro-certifications; short courses, boot camps or digital badges (Cirlan and Loukkola 2020) or other forms of certification. A Canadian study found that the two most common terms in use appear to be *badges* and *micro-credentials*, often used interchangeably (Duklas 2020). Sometimes terminology differs within one country and between sectors (Colleges and Institutes Canada 2021). Some have noted the need to develop a glossary of terms (Maxwell and Gallagher 2020) in a common language that defines and describes the concept of micro-credentials in an easily accessible and understandable manner (Brown, Nic Giolla Mhichíl et al. 2021).

One of the potential assets of micro-credentials is their greater portability across real geographic borders compared to more traditional vocational or occupational ones that are often not recognised by employers or professional bodies in different countries or regions. Increased transparency is needed to ensure trust in the value of micro-credentials so that portability and recognition of micro-credentials across borders can become a reality (European Commission 2020). In spite of the crowded space, challenges still exist in terms of scaling up the use of micro-credentials so that they become more recognisable (Orr, Pupinis et al. 2020). Diversity of language within and across regions and nations, even among educational experts, is one of the contributing factors of cross-border recognition. Certainly, regional initiatives that agree a definition and quality standards are bringing consensus: examples include the European Common Micro-credentials Framework for MOOCs and Short Learning Programmes (Antonaci, Henderikx et al. 2021) and the definition agreed by Colleges and Institutes Canada (Colleges and Institutes Canada 2021). However, much more is needed to prompt educators and policy makers to move towards greater consensus, and to be able to explain micro-credentials to learners and employers.

This report attempts to address micro-credentials' definitional problem: it proposes a definition arrived at through consensus by a global expert panel and derived from an initial analysis of the micro-credential definitions published in recent policy documents. The proposed definition is not intended to replace national or regional definitions. It is an attempt to distil what experts "agree that they agree on" so far about micro-credentials. It is intended as a layperson's umbrella statement that can be a reference point, rather than a replacement, for established definitions. For these reasons, the proposed definition, with its explanatory text, is generic rather than granular.

The report provides a brief survey of recent micro-credential policy developments, explains how the proposed definition was broadly agreed with experts, adds some observations on the proposed definition and outlines the next steps.

2. Policy analysis: where are we at with micro-credentials?

The changing nature of work – and life

The future of work became a recurrent theme in media and commentary in about 2015, and has been frequently tied to the fourth industrial revolution (Schwab 2017). Whereas the focus of attention early on seemed to be on the replacement of human labour with technology (Bakhshi, Frey et al. 2015, Frey and Osborne 2015), recent events such as the pandemic seem to have shifted that focus from preparing citizens not just for very disrupted work environments, but for lifelong learning. For example, in 2020 UNESCO called for the transformation of schools and universities into lifelong learning institutions, the placing of vulnerable groups at the core of a lifelong learning policy agenda and establishing lifelong learning as a common good (UNESCO Institute for Lifelong Learning 2020). Similarly, in its *Skills Outlook 2021* (subtitle: "Learning for Life"), the OECD highlights learning across the lifespan, including future-proofing workers from demand shocks and long-term structural changes. The OECD specifically recommends placing learners at the centre of learning that is inclusive, affordable, accessible and adaptable, focusing on skills for a lifetime by judicious use of technology; and improving recognition, validation and accreditation to enhance the visibility and transferability of the skills taught in disparate programmes (OECD 2021).

Truly lifelong learning includes preparation for paid employment, but it also encompasses learning before a working life begins, and after it concludes. While preparation for thriving at work is often at the heart of formal post-secondary education, preparation for thriving in life requires personal development and mental and physical health education. The latter may become increasingly important in a post-pandemic world in which there is less paid work to be had. Ongoing education for interest, enrichment and social engagement is an attractive solution, and a conundrum, in a world where the chances of being a centenarian are increased (Gratton and Scott 2016). Such a world is likely, for those so privileged, to include increased demand for education as and how it is desired: continuing education that is flexible and personalised, online, on-demand and peer to peer (Resei, Friedl et al. 2019).

The associated changes required in formal education systems

The demands these societal changes make on government-funded education systems are enormous: regional and national governments are responding through changed policy directions. The European Commission, for example, calls for learning pathways in vocational education and training institutions to open up to more personalised pathways, and become more flexible and modular so that a more diverse group of learners have access to flexible opportunities throughout life (European Commission 2020). After some twenty years of increased investment in higher education, where productivity gains among broader cohorts of graduates are hard to measure (OECD 2020), some jurisdictions have responded by shifting emphasis away from degree programmes and towards training courses, including shorter credentials. The proposed UK Lifetime Skills Guarantee, for example, promises to deliver on jobs and growth by investing in, inter alia, higher-level technical qualifications as valuable alternatives to university degrees: a Lifelong Loan Entitlement will transform the funding system to make it as easy to get a loan for a higher technical course as it is for a full-length university degree (Department for Education 2021). In another example, the Australian government is focused on enabling easier transitions between vocational training and higher education, better recognition and greater uptake of short form credentials, and ensuring qualifications incorporate the skills and general capabilities that best support students to be job ready (Commonwealth of Australia 2020). Such policy reforms are designed to suit current and future non-linear lives that are complex and multi-stage (Orr, Pupinis et al. 2020). In this environment, there is a growing belief that skills rather than degrees may be the reality, leading to new business models that are disrupting traditional educational institutions and operating models (Østergaard and Nordlund 2019).

Such thinking may extend to continuing professional development and adult education in general: the OECD predicts that the extent to which individuals, firms and economies can harness the benefits of current societal changes critically depends on a country's adult learning system to help people develop and maintain relevant skills over their working careers. Many are insufficient: only two-in-five adults (41%) participate in education and training in any given year, and uptake is especially low amongst those most in need of upskilling and reskilling (OECD 2019). As formal education systems face increasing pressure with regard to employability, and with constrained resources likely in the future, new ways of acquiring and signalling skills have been suggested as a way to fill the gap between the programmes that higher education provides and the skills that firms seek (Kato, Galán-Muros et al. 2020). A persistent theme is industry-embedded learning where learning is not separate from doing (AI Group Centre for Education and Training 2021).

Enter micro-credentials

To many policy makers and industry and education leaders, micro-credentials are the obvious answer to many of these pressures and trends, perhaps accelerated by the pandemic. Even though many educational experiences that are generally grouped within the term micro-credentials have been in existence for many years (Oliver 2019), the term has gained prominence in recent years (Brown, Mhichil et al. 2021). This has largely been in connection with the emergence of massive open online courses (MOOCs) in about 2012; since that time there has been an emerging, competitive marketplace for lifelong learning with a range of new business models, programs structures, partnerships and pedagogies (Côté and White 2020).

This includes demand for alternative forms of education, personalised learning, micro learning and high-velocity training (Beirne, Nic Giolla Mhichíl et al. 2020). New learning models typically feature shorter, flexible, virtual, work-integrated and demand-driven education, increasingly tied to the all-encompassing term, micro-credentials (Côté and White 2020). MOOCs and other forms of online learning experienced a boom in enrolments in 2020 (Hanne Shapiro Futures, Tine Andersen et al. 2020, Orr, Pupinis et al. 2020, Shah 2020). Learners sought not just workplace skills but health information (including mental health and resilience) (Shah 2020).

Potential learner benefits

Micro-credentials are promoted as offering greater flexibility and facilitating inclusion in lifelong learning by reaching new learners, including those from disadvantaged backgrounds, including those who have been discouraged to enter the education system (European Commission 2020). However, studies have shown that so far MOOCs have not necessarily catered for those deprived of access to higher education: MOOC learners to date have typically been professionals who already have at least a first post-school qualification and who are using MOOCs for extra professional training (Hollands and Kazi 2019, Hollands and Kazi 2019, Pushpanadham 2019).

For many learners, acquisition and verification of skills and knowledge are the two main motivators for enrolling in micro-credentials, usually for work-related purposes and because they cost less time and money (Kato, Galán-Muros et al. 2020). This is fuelled by a sense that the skills in demand by today's employers do not always require years of study: workshops, short programmes or voluntary work can equip learners with skills to work in specific fields (Cirlan and Loukkola 2020). Micro-credentials can be more specialised and focused than an academic degree (Maxwell and Gallagher 2020). Even so, there is an enormous variety on the characteristics of potential importance to learners: delivery modes; duration; assessment processes; areas of focus; capacity to be embedded within or cumulate into larger credentials; and characteristics of providers (Kato, Galán-Muros et al. 2020). Micro-credentials are promoted as enabling life and career transition across several stages: into and out of formal education programs, into the workplace, up career ladders or across occupations and sectors (Presant 2020). There is potential to build on and 'stack' micro-credentials, or apply for recognition or credit or advanced standing towards another micro-credential or qualification (Oliver 2019). Both Coursera and edX platforms offer micro-credentials (for example, MicroMasters) as pathways to Master degrees (Reich and Ruipérez-Valiente 2019). However, Canadian research has found that a common motivation for creating micro-credentials involve providing credentialed recognition for what a person knows and can do: as yet there has been far less interest in designing credentials to support future admission, transfer and stackability (Duklas 2020). Micro-credentials may particularly suit mature working learners who are more likely to be self-regulated learners, autonomous and active (Gish-Lieberman, Tawfik et al. 2021). The growing focus on demand-driven and industry co-constructed micro-credentials in partnership with employers (Brown, Nic Giolla Mhichíl et al. 2021) makes them potentially very attractive to learners seeking career advantage. Businesses seeking to promote workforce development can use micro-credentials to boost employee morale, productivity, and retention (Ralston 2021).

The challenges of micro-credentials

Despite the hype associated with micro-credentials, there are several challenges with, to date, little resolution. These challenges are associated with achieving a common understanding of what micro-credentials are and are not; whether their touted benefits are realised, and how they fit in with, or alongside or in place of formal education. Some of the key challenges – in addition to micro-credentials’ definitional problems -- are briefly set out here.

How do they fit? Do micro-credentials complement or replace qualifications?

Some suggest that there is an increasing need for new forms of credentials that can better document the informal, online, and lifelong development of skills and knowledge both inside and outside of formal education (West, Newby et al. 2020). However, some commentators suggest that the rise of micro-credentials does not necessarily mean the replacement of traditional degrees, but brings in the possibility of supplementing degrees and similar qualifications with new and shorter forms of provision that fit the needs of working adults (Resei, Friedl et al. 2019, Cirlan and Loukkola 2020, European Commission 2020, Hanne Shapiro Futures, Tine Andersen et al. 2020, Kato, Galán-Muros et al. 2020). In recent research conducted in the United States, degrees were seen by employers as fairly reliable representations of candidates’ skills and knowledge; around three-quarters of respondents believed that degree completion was a valuable signal of perseverance and self-direction (Gallagher 2018). On the other hand, some have cautioned against the practice of ‘chunking’ the components of degrees into micro-credentials, because the flaws associated with degree programmes will inadvertently undermine micro-credentials (Boud and Jorre de St Jorre 2021). Moreover, to avoid the criticisms sometimes ladled at ‘degrees that go nowhere’ (Bothwell 2021), some suggest that a micro-credential should be accompanied by a map which shows pathways into one or more recognised qualifications or other legitimate possibilities to increase learner confidence that a micro-credential leads to a tangible outcome (Boud and Jorre de St Jorre 2021).

Who provides micro-credentials, and can new providers be trusted?

Along with ballooning terminology, the growing number of types of micro-credentials has led to concerns about their value (European Commission 2020). The myriad of micro-credential providers as well as their offerings threatens their credibility and the sheer multitude causes them to be perceived as having little or no value (Cirlan and Loukkola 2020) in – to use geographic metaphors – a ‘wild west’ and a ‘jungle of badges’ (Chakroun and Keevy 2018). There is currently a dizzying array of providers of micro-credentials. While there is appetite to offer micro-credentials among many traditional education providers, as evidenced in regional studies (see, for example, Selvaratnam and Sankey 2019, Duklas 2020, Hanne Shapiro Futures, Tine Andersen et al. 2020), micro-credentials are offered by an increasingly broad group of non-traditional industry bodies, commercial companies and private providers who are not necessarily trusted as yet (Beirne, Nic Giolla Mhichíl et al. 2020, Oliver 2020). There are increasing examples of education and industry providers partnering to offer employment-focused micro-credentials as reported in research from the United States (Fong, Janzow et al. 2016). As an example, Northeastern University and IBM have a partnership that allows individuals with an IBM-issued badge to receive graduate credit (Leaser, Jona et al. 2020). However, other organisations such as the British Council, the International Labour Organization, and the World Bank also offer credential certificates (Cirlan and Loukkola 2020). Google announced in 2020 that their micro-credential in information technology support on

the Coursera platform is designed to replace the three-year degree (Walker 2020): in doing so, non-traditional providers such as Google are creating their own talent pool from which to source employees. This is part of the shift from the education as a supply-driven to a demand-driven system in which industry and students create demand (Contact North 2020), bypassing traditional providers. Whether such micro-credentials provide learners with skills that are attractive to other employers, or over time, is yet to be seen.

Quality assurance is needed – how to do it is not straightforward

Educational qualifications derive some of their power from their strong quality assurance— a degree or certificate from a known institution usually builds trust in their value. Not so micro-credentials which are often unaccredited (Ralston 2021), disconnected from educational institution-wide, quality assured framework and enterprise level student record systems (Duklas 2020) or lack transparency around standards (Resei, Friedl et al. 2019, Contact North 2020, European Commission 2020). The problem of quality assurance is not unrelated to lack of a definition and its associated criteria (Cirlan and Loukkola 2020). It is exacerbated when the provision of micro-credentials is by the likes of Google, a company outside education regulation unlike traditional education providers.

This is a knotty problem yet to be resolved: potential solutions include establishing a register of trusted issuers and mutual recognition at a European level to avoid micro-credentials existing in isolation, or as a series of ad-hoc badges or recognition certificates, with limited currency amongst employers (Brown, Nic Giolla Mhichíl et al. 2021). In 2020, the European Commission suggested differentiating between two types of micro-credentials: one category for micro-credentials issued by formal education institutions and aligned with the European Qualifications Framework and other credit systems. For these micro-credentials, standards can be identified more easily, based on the current higher education transparency tools. Another category would be micro-credentials issued by non-formal education providers, though how quality assurance would be managed for these micro-credentials is as yet unclear (European Commission 2020). Perhaps opportunity lies within the challenge: on a revenue share basis, non-traditional providers could seek endorsement of their offerings by accredited education providers with mature quality assurance processes. When a workable solution is found, it is unlikely to be straightforward: imposing regulation on providers from outside the regulatory sphere is a challenge.

Too soon to tell – evidence of success is not yet convincing

In spite of the hype around micro-credentials, evidence of success to date is scant: the uptake and impact of micro-credentials for professional purposes is limited (Ehlers, 2018) as is solid evidence that credentials result in increased opportunities for employment, advancement and earnings (Kato, Galán-Muros et al. 2020). However, Coursera, the world's largest MOOC platform, is at least making an attempt to report learner satisfaction and career advancement (Oliver 2020). While there are studies researching the benefits of digital badges (for recent examples, see Roy and Clark 2019, Stefaniak and Carey 2019, Noyes, Welch et al. 2020, West, Newby et al. 2020), many would agree that a greater investment and commitment to research is required to better understand the key barriers and enablers to successful micro-credential implementation (Brown, Nic Giolla Mhichíl et al. 2021). Of course, research is hampered by a universally accepted definition.

Misgivings: the risk of unintended consequences if education funding is diverted

To date, there are few examples of funding for micro-credentials in national loan and grant programmes: those loans intended for traditional qualifications do not usually extend to micro-credentials (Kato, Galán-Muros et al. 2020). That boundary is less clear when publicly-funded universities are increasingly entering public private partnerships to support their teaching operations (Marks and Sparkman), resulting in revenue share arrangements with online programme manager (OPM) companies, for example. A recent Canadian policy analysis identified eight emerging business models in this space: in-house approaches developed under the full control of the institution, and external partnerships where the institution leverages its shared interests with the private sector, government or other institutions (Côté and White 2020).

There is a growing chorus of voices, often from within the academy (for example, Buchanan, Allais et al. 2020, Ralston 2021, Wheelahan and Moodie 2021), warning against policymakers' enthusiasm for micro-credentials and calls for re-allocation of funding away from degree programmes and towards pilots for micro-credentials. Such views demand attention: those who promote micro-credentials as a solution may find unintended consequences if resource-constrained governments divert funding away from first post-school qualifications such as degrees (denying younger learners the opportunity to achieve proficiency in a base discipline in a three-year programme). Since many employers so far still place greater store in the attainment of such qualifications (Gallagher 2018), particularly in fields where accredited courses are overseen by professional bodies, widescale diverting of those funds to new and untested micro-credential schemes might prove deleterious and lead to greater inequity. Such reservations have also been raised by trade unions: a Joint ETUC – ETUCE Position paper requests the European Commission, for example,

*to focus on ensuring **sustainable public investment in education, a European right to training which helps workers and employees with fair career development, and support for the unemployed and “low-skilled” adults** through formal recognition of their skills competencies and to receive the necessary basic and professional skills to get a job. It is important that upskilling and reskilling trainings of the workers and the unemployed who do not have a full qualification provide them both social and professional skills and competences to ensure that they not only reach a full qualification but have a strong position in the labour market for the transitions (ETUC - ETUCE 2020).*

Buchanan et al (2020) contend that the prime strength of education systems is not to meet skills gaps, particularly in times of crisis, but to build, over time, an educated citizenry that can respond to short and long-term challenges:

*What is required now is more ambition and more focus in how education fits into the overall policy mix. Instead of mistakenly expecting it to make up for the deficiencies in other policy realms, all realms of policy should be arrayed to nurture more highly educated citizens. **The focus should not be on short-term ‘employability’, as per the Google six-month degree, but in creating a knowledgeable citizenry.** Education should be a central element of a policy mix committed to deepening social development more broadly. Education can also support the development of new domains of expertise in ways that augment coherence (and reduce fragmentation) in the labour market (p.13, emphasis added).*

On the opposite side of this argument, some may argue that the formal education system is not equitable, cementing privilege for some and disadvantage for others, and that funds for other forms of accessible education such as micro-credentials should in fact be reallocated to assist more vulnerable groups.

These are some of key challenges with regards to building trust and value with micro-credentials. Careful management is required, taking into consideration the exciting potential as well the potential pitfalls of scaling up new ways to educate and engage learners across the lifespan. Certainly, ongoing research is required to test the effectiveness of micro-credentials, as are the testing of innovative solutions to new and persistent challenges. This report sets out the outcomes of a short project to move forward towards a solution to one of the main challenges with micro-credentials: coming to a consensus about what we agree on so far regarding defining micro-credentials.

3. Towards a consensus definition of micro-credentials

How the proposed definition was created

Under the overall authority of the Director of the Division for Policies and Lifelong Learning Systems of UNESCO Education Sector, a study was commissioned to attempt to move the field forward towards a common definition of micro-credentials that would be accessible to learners and employers, regardless of region or sector. It was not intended that the proposed definition would replace established definitions: instead, the proposed definition would serve as an international reference point for existing and future definitions. In undertaking this work, UNESCO and its network of experts are hoping to move forward the debate and the challenges facing the wider acceptance and recognition of micro-credentials, while being aware that resolving the definitional issue is only a first step in a broader process.

Consensus requires broad agreement by participants from a range of positions and situations: to build the consensus, the project leader enlisted the engagement of a global panel with expertise in credentialling, qualifications, scholarly activity and experience with micro-credentials¹. The number of experts was limited to fifty to enable timely and manageable responses². With a view to achieving gender, regional and sectoral diversity, invitees were representatives of international organisations, national and regional qualifications authorities, non-government organisations, foundations, professional bodies and scholars who had authored, or contributed to micro-credential publications with regional or sectoral impact. Representatives of commercial companies and platforms were excluded from the expert panel to avoid influence for commercial gain. Experts were sourced through the literature and policy analysis, UNESCO contacts and peer nomination from other experts. A process, loosely based on the Delphi method, was created whereby experts (unidentified to each other) were invited by email to provide their feedback on three versions of a proposed definition. After each feedback round, experts were sent a summary of their collective feedback and justification for

¹ Experts are acknowledged in Appendix 1 of this report.

² Version one was presented to experts in mid-June, 2021, and the third and final version for feedback was presented in mid-July, 2021.

the proposed changes in the subsequent version. Three versions of the definition were sent to experts for their feedback and consensus: the three versions appear as Appendix 2.

Version one of the proposed definition was created based on an analysis of fifteen existing micro-credential definitions published in policy documents in recent years. It was assumed that such policy definitions had reach beyond individual opinion, and that there has been a degree of regional or sectoral consultation in their production. As far as possible, policy documents were sourced to reflect regional and sectoral diversity and broadened to include terms associated with micro-credentials (such as “alternative credentials”). The full text of the selected definitions appears as Appendix 3. **Version one** was based on an analysis of fifteen selected definitions, incorporating the most frequently mentioned characteristics. In order from most to least frequently mentioned, these characteristics were:

1. Certification (mentioned by all)
2. Relation to other credentials
3. Outcomes and assessment
4. Standards and quality assurance
5. Purpose
6. Duration
7. Ownership, portability, shareability
8. Providers of micro-credentials
9. Security
10. Mode of delivery (mentioned by one).

Building a new statement based on these characteristics produced a cumbersome first version which prompted active engagement from most experts³. After the first round of feedback, it became clear that to be effective and useful, the proposed definition should be short and accompanied by explanatory text.

Version two used explanatory text to set the scene, defining credentials, then *macro-credentials* (a new term to denote degrees and similar), and then micro-credentials. The term *macro-credential* was chosen rather than *degrees or qualifications* for several reasons: some degrees are called diplomas or certificates (as are some micro-credentials); while qualifications often mean degrees, some micro-credentials ‘qualify’ a person to perform a task; some jurisdictions list all degrees on their national qualifications framework (NQF), but not all jurisdictions have NQFs. Also, micro-credentials are likely to be added to NQFs in some jurisdictions in the future, and so equating macro-credentials with items listed on NQFs would cause confusion. The vast majority of experts generally supported version two, and some made further suggestions for improvement.

In **version three**, the explanatory text was shorter and sharper, and the definition was reworded in parts for greater clarity. In this final feedback round, experts were asked if they *could live with*⁴ version three of the proposed definition preceded by its explanatory text, and they were also invited to indicate any parts they *could not live with* (to help identify where

³ Fifty experts initially agreed to participate in the project, and of those forty-seven participated in at least one round of the consensus process.

⁴ Experts were informed that indicating they could “live with” this version meant that they might not agree with every single word but it was generally acceptable and “good enough”.

broad consensus was not achieved). Of the forty-seven active experts, forty-five participated in the final round of feedback, all indicating that they could “live with” the proposed text and definition. Seventeen experts nominated specific parts that they could not “live with” or suggested further wording changes. Those suggested changes to the explanatory text that were judged to provide greater clarity or readability without changing the essential meaning of the previous version were enacted by the project leader. The use of the term “and/or” could have been used in several places, but for elegance was replaced by “or”. The final version of the proposed definition, presented in the following section, is **version four**.

4. The proposed definition of micro-credentials

The fourth and final version of the proposed definition is as follows. The explanatory text is in plain text; the micro-credential definition is in italics. This proposed definition is not officially endorsed by UNESCO: rather it is the outcome of a preliminary study among experts and may be used to inform UNESCO’s formal position in due course.

Credentials, macro-credentials and micro-credentials

Credentials verify, validate, confirm, or corroborate a person’s learning achievements, knowledge and preparedness for performing tasks. Credentials are diverse with regard to their scope, status and purpose.

A large subset of credentials can be referred to as **macro-credentials**: generally, these include degrees, diplomas, certificates and licences, often awarded by accredited, recognised or regulated educational and other institutions or organisations. They indicate learning achievement of a broad body of knowledge, transferable skills or technical proficiency and may take a number of years to complete. While some are pursued for personal or general educational advancement, others are associated with qualifying to practice a particular profession or to follow a particular career path.

Another large subset of credentials can be referred to as **micro-credentials**: these are typically focused on a specific set of learning outcomes in a narrow field of learning and achieved over a shorter period of time. Micro-credentials are offered by commercial entities, private providers and professional bodies, traditional education and training providers, community organisations and other types of organisations. While many micro-credentials represent the outcomes of more traditional learning experiences, others verify demonstration of achievements acquired elsewhere, such as in the workplace, through volunteering, or through personal interest learning. Micro-credentials are often promoted as an efficient way to upskill workers across the lifespan.

A micro-credential:

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

Parts of the definition where consensus was not achieved

The main areas in the definition where there was less consensus were as follows:

- Whether **recognition of prior learning should be included** (several experts challenged this: for example, “not exclusive to micro-credentials”, “no common understanding of what this means”, “is it really of the essence of a micro-credential?”). As so many experts applauded its

inclusion earlier in the process, and because most experts indicated they could live with its inclusion, this phrase was kept in the final definition;

- “**Competent organisation**”, like its predecessor “recognised body”, attracted negative reactions from several experts. In the final version, this phrase was replaced by a new term “trusted provider” in an attempt to find a more palatable term; and
- Strong representations from several experts bemoaned the loss of the final bullet point (“A micro-credential . . . meets **the standards required by relevant quality assurance**”). Some felt that quality assurance was therefore underdone in the definition. Based on these strong representations and near universal agreement of the importance of quality assurance, the bullet point was reinstated in the final version.

Comments and observations on the proposed definition and the explanatory text

The differentiating characteristic of a micro-credential

A definition sets out to define what an object is, and those characteristics which mean it is included or excluded from a group. The definition presented here is set out in four points (numbered for convenience): point one sets out the characteristic that makes a credential ‘micro’ (its narrower focus) rather than macro. Apart from the word *focused*, critics could point out that all other parts of the definition apply equally to macro-credentials. This reflects the tenor of the feedback, and concern that micro-credentials must mimic certain characteristics of macro-credentials (learning outcomes, albeit more focused; assessment; standards; stand-alone value and stackability; and quality assurance) if they are to become valued and trusted *credentials*. Some experts agreed with the proposed definition but felt it was bland, generic, or not sufficiently future-focused.

From the known to the unknown

The explanatory text is intended to “prepare the ground” for the definition. It shows there are many similarities and some differences between macro-credentials and micro-credentials. It attempts to take the lay reader from the known to the unknown, from the broadest category (credentials) to two large subsets, illustrating how micro-credentials are somewhat similar but in key ways quite different (specifically broader, and offered by a broader population of providers). It may be a fair observation that since the definition requires its explanatory text for context, perhaps the entirety of the text is more of a clarifying statement.

Short or focused

Narrowness of focus was chosen over length of time required for completion (“short” is often used in other micro-credential definitions and is mentioned in the explanatory text) because time spent depends on mode of enrolment and type of learning engagement. Also, experts indicated that focusing on the outcomes was more important than ‘time spent’.

Defining the terms in the definition

One term in the explanatory text, *macro-credentials*, is new and may jar with readers. Other terms used need their own definition (who counts as a trusted provider? trusted by whom?). A fair observation is that terms within the proposed definition require their own definitions.

Is this new, or a replication of existing definitions?

The project began with a study of selected micro-credential policy definitions, using frequently mentioned characteristics as a basis for version one. Table 1 shows whether and how these characteristics map to the version four explanatory text or definition

Table 1 Characteristics in the proposed micro-credential explanatory text and definition mapped to micro-credential characteristics in recent policy documents

Characteristics in other definitions of micro-credentials	Characteristics included in the proposed micro-credentials explanatory text	Characteristics included in the proposed micro-credentials definition
1. Certification		a record
2. Relation to other credentials		has stand-alone value and may also contribute to or complement other micro-credentials or macro-credentials
3. Outcomes and assessment	typically focused on a specific set of learning outcomes in a narrow field of learning	focused learning achievement... assessment based on clearly defined standards
4. Standards and quality assurance		meets the standards required by relevant quality assurance
5. Purpose	While many micro-credentials represent the outcomes of more traditional learning experiences, others verify demonstration of achievements acquired elsewhere, such as in the workplace, through volunteering, or through personal interest learning. Micro-credentials are often promoted as an efficient way to upskill workers across the lifespan.	
6. Duration	achieved over a shorter period of time	
7. Ownership, portability, shareability		
8. Providers of micro-credentials	offered by commercial entities, private providers and professional bodies, traditional education and training providers, community organisations and other types of organisations.	awarded by a trusted provider
9. Security		Verifying
10. Mode of delivery		

Observations on the mapping of these characteristics

- **Purpose:** A section of the explanatory text seeks to convey the broad variety of the purposes of micro-credentials: they may entail teaching in traditional or online settings (as do most macro-credentials); however, they may also may be enacted based on learning in the workplace, community engagement and through personal interest. It is often claimed, but not always substantiated, that micro-credentials are a promising way of upskilling workers across the lifespan.
- **Ownership, portability, shareability:** This set of characteristics was removed early in the process. While learner agency was applauded in expert feedback, these attributes equally apply

to macro-credentials. Also, a credential may be ‘owned’ by a learner but many can be revoked by the issuer.

- **Security:** The reference to “verifying” is not a strong message about security when we consider sophisticated digital solutions, but a pointer to the facility to verify the learning achievement claims of the micro-credential holder
- **Mode of delivery:** This is the least mentioned characteristic in micro-credential policy documents, and not mentioned at all in this proposal. It was agreed by experts that while mode of delivery of micro-credentials often entails a digital element, this was also true of macro-credentials. It was also acknowledged that many micro-credentials are delivered in traditional face-to-face mode, or in hybrid modes. A particular mode of delivery is not a differentiating characteristic of micro-credentials.

Changing the “boundaries”

Some of the characteristics included in the proposed definition mean that some learning experiences currently considered as micro-credentials would no longer be included. One such clear differentiator is the requirement for assessment, and against clearly defined standards. The requirement for assessment will disqualify some learning experiences called micro-credentials from this definition. Another is the status of the provider (“trusted”) and the requirement to “meet the standards required by relevant quality assurance”. Quality micro-credentials make all of these characteristics transparent to learners and employers. The agreement on including these characteristics by the expert panel also probably reflects on their roles and expertise.

Where are the digital aspects of micro-credentials?

Critics, including some experts, may bemoan the lack of any reference to digital affordances in this proposed definition: technology-related aspects of micro-credentials usually cluster in three areas: online provision, digital badges and digital security (for example, blockchain). All of these, to some extent, can also apply to macro-credentials, or may do in future: online and hybrid provision is more common, particularly post-pandemic; digital badges may be incorporated into or sit alongside macro-credential programmes; and projects designed to digitise degree certificates to enable online verifiability by employers are underway.

5. Conclusion and next steps

Micro-credentials offer exciting possibilities but because it is still early days, the benefits and sustained outcomes are yet to be realised or proven, in many cases. Most agree that further robust research is needed to test micro-credentials’ efficacy, and especially the frequent claim that they offer an efficient way to upskill workers. Any such benefits will need to be weighed against potential unintended consequences if educational funding is diverted from formal systems. The result may not be a better educated citizenry that has the discipline knowledge and the transversal skills to solve tomorrow’s problems. On the other hand, micro-credentials outside formal education systems may offer bold advances in achieving equity – gender equity, and better opportunities in those communities currently privileged in formal education systems. In a world where both work and education are often disrupted for all, achieving this balance will be challenging. Even amid such disruption, micro-credentials might be more suited to supplementing and complementing rather than replacing macro-credentials in some disciplines and in some communities.

To test their efficacy, a common understanding of micro-credentials is required – for experts and policy makers and particularly for lay users. Achieving consensus with over forty experts from all sectors and parts of the globe has been a challenging exercise in a short time frame. More experts now need to be included in the conversation, with due regard for jurisdictional and sectoral differences. Experts with commercial interests in micro-credentials need to be brought into the conversation. One of the aims of this exercise was to propose a definition that was more understandable to learners and employers across a broad range of industries – the fitness of this definition for this purpose has not yet been tested: lay users need to be brought into the conversation as well. To be universally useful, any definition needs to be translated – and translatable—into many languages other than English: this will be a further challenge.

The definition proposed here, with its explanatory text, is intended to be the beginning of a conversation, rather than the last word on this topic. The preliminary work undertaken in this project, broadly endorsed by a consensus of experts, is intended to spur further comment and contribution, and move the field forward, and highlight the micro-credential challenges that need solving. Chief among these is quality assurance. This exercise showed that the global expert panel was staunch in its agreement that this is required– but including it in a definition does not solve how it can be done, particularly when providers proliferate and operate outside regulated areas.

That this proposed definition, with its explanatory text, shows the slim difference between macro- and micro-credentials may underline the quality assurance message: that is, that the *micro* is the distinguishing feature of micro-credentials, but to be accepted and trusted, they must be seen to bear the quality hallmarks of *credentials*.

Appendix 1: The global expert panel

The contribution of the members of the global expert panel is gratefully acknowledged. The experts named here indicated that they were broadly supportive of version three of the proposed definition.

Ms Anastasia Pouliou, Expert, Department for VET Systems and Institutions, European Centre for the Development of Vocational Training

Mr Anatolii Garmash, Senior Human Capital Development Expert - Qualification Systems, European Training Foundation

Dr Anne Danby, Chair, Northern Universities Consortium for Credit Accumulation and Transfer, University of Derby, United Kingdom

Dr Beatriz Palacios, Director at Educational Innovation, Tecnológico de Monterrey, Mexico

Dr Deborah Everhart, Chief Strategy Officer, Credential Engine, United States

Dr Deborah Jack, Executive Director, National Accreditation Council, Guyana

Dr Demelza Curnow, Lead Quality Manager (Membership, Quality Enhancement & Standards), Quality Assurance Agency, United Kingdom

Ms Di Booker, Consultant, Australia

Dr Dominic Orr, Adjunct Professor for Education Management University of Nova Gorica, Team lead atingi.org at GIZ, Germany

Mr Don Present, President, Learning Agents, Canada

Dr Fiona Aldridge, Director for Policy and Research, Learning and Work Institute, United Kingdom

Dr Gary W. Matkin, Dean, Continuing Education, Vice Provost, Career Pathways, University of California Irvine, United States

Ms Gillian Golden, Project Lead, Higher Education Policy Team, Directorate for Education and Skills, OECD

Dr Grant Klinkum, Chief Executive, NZQA, New Zealand

Ms Hanne Shapiro, Independent researcher, Hanne Shapiro Futures, Denmark

Mr Herman de Leeuw, Executive Director, Groningen Declaration Network

Ms Jackie Pichette, Director, Policy, Research and Partnerships, Higher Education Quality Council of Ontario, Canada

Dr James Keevy, Chief Executive Officer, JET Education, South Africa

Ms Joanne Duklas, President, Duklas Cornerstone Consulting Inc., Canada

Mr John Hart, UNESCO consultant on World Reference Levels

Dr John O'Connor, Head of Framework Integrity, Quality and Qualifications Ireland, Ireland

Dr Julie Reddy, Chief Executive Officer, South African Qualification Authority, South Africa

Ms I. Karina Fuerte Cortés, Editor in Chief, Observatory of the Institute for the Future of Education, Tecnológico de Monterrey, Mexico

Mr Koen Nomden, Team Leader, Transparency and Recognition of skills and Qualifications, European Commission

Dr Kristi Wold-McCormick, Assistant Vice Provost and University Registrar, University of Colorado Boulder, United States

Ms Lena Patterson, Program Director, Business Development and Microcredentials, G. Raymond Chang School of Continuing Education, Ryerson University, Canada

Ms Lilian Kek Siew Yick, Senior Director (Accreditation) Malaysian Qualifications Agency, Malaysia

Dr Mairéad Nic Giolla Mhichíl, Director of Micro-Credential Strategy and Innovation and Head of DCU Studio, Dublin City University, Ireland

Dr Manpreet Manna, Associate Professor, Sant Longowal Institute of Engineering & Technology; Former Director, AICTE Government of India, India

Dr Marcus Bowles, Chair, The Institute for Working Futures Pty. Ltd, Australia

Ms Margit Schatzman, President, Educational Credential Evaluators, Inc., United States

Ms Maria Kelo, Director, European Association for Quality Assurance in Higher Education (ENQA)

Ms Marie Macauley, Programme Specialist, UNESCO Institute for Lifelong Learning

Professor Mark Brown, Director, National Institute for Digital Learning, Dublin City University, Ireland

Ms Megan Lilly, Head of Education & Training, Australian Industry Group, Australia

Ms Melanie Gottlieb, Interim Executive Director American Association of Collegiate Registrars and Admissions Officers, United States

Dr Paul Comyn, Skills Policies & Systems Team Lead, at International Labour Organization

Ms **Pauleen Finlay**, Executive Director, Grenada National Accreditation Board, Grenada

Mr Ron Watts, Board Director and Treasurer, Australian Council of Professions, Australia

Dr Sean Gallagher, Executive Director, Center for the Future of Higher Education & Talent Strategy, Executive Professor of Educational Policy, Northeastern University, United States

Mr Shawn Mendes, Head of VET and regulated professions, Swedish Council for Higher Education, Sweden

Professor Shingo Ashizawa, Faculty of Global and Regional Studies, Toyo University, Japan

Dr Simon Eassom, Former Executive General Manager Education, CPA Australia

Dr Susanna Karakhanyan, President, International Network for Quality Assurance Agencies in Higher Education (INQAAHE), United Arab Emirates

Ms Tia Loukkola, Deputy Secretary General, European University Association

Appendix 2: The three versions of the proposed universal definition of micro-credentials

Version one:

A micro-credential (also known as an alternative credential)

- is a certified achievement of learning outcomes, competencies or skills, assessed as part of a short learning experience designed to enable employment and or lifelong learning;
- may stand alone or lead to or interact with other credentials or formal qualifications but is usually less than a formal qualification;
- meets the standards required by relevant quality assurance processes
- ideally is owned, portable and shareable by the learner
- may be required to meet stipulations imposed by relevant regional, sectoral or professional bodies.

Version two of the definition, with explanatory text:

Credentials, macro-credentials and micro-credentials

Credentials verify, validate, confirm, or corroborate a person's claims about their learning achievements, their knowledge and their fitness for performing tasks. Credentials are extremely broad with regard to their size, shape, status and purpose.

A large subset of credentials can be referred to as **macro-credentials**: traditionally, these include degrees, diplomas and certificates, often awarded by accredited or regulated educational institutions. They indicate learning achievement of a broad body of knowledge and technical proficiency and often take years to complete. While some are pursued for personal interest learning and general educational, many are associated with qualifying to practice a particular profession. The tangible evidence of the achievement of a macro-credential such as a degree is usually a parchment testamur. Recently, they may also be verifiable as digital credentials.

Another large subset of credentials can be referred to as **micro-credentials**: while many have existed for years, they have come to prominence more recently. Unlike macro-credentials, micro-credentials are typically focused on a specific field of learning or technical proficiency, and are often achieved over a shorter period of time. Where macro-credentials such as degrees are offered predominantly by educational institutions, micro-credentials are also offered by others such as commercial entities, private providers and professional bodies as well as by traditional education providers. While many micro-credentials take the form of traditional learning experiences, others are based on demonstration of achievements acquired in the workplace. Because of the changing nature of work, and displacement of workers, micro-credentials are often seen as an efficient way to upskill and reskill workers across the lifespan. They are also pursued for personal interest learning. Many micro-credentials are signified by the award of a digital credential such as a badge.

A micro-credential is:

1. a verified representation of a specific and focused learning achievement, assessed according to transparent standards and awarded by a recognised body;
2. has stand-alone value and may contribute to or combine with other micro-credentials or macro-credentials, including as recognition of prior learning;
3. meets the standards required by relevant quality assurance.

Version three of the definition, with explanatory text:**Credentials, macro-credentials and micro-credentials**

Credentials verify, validate, confirm, or corroborate a person's learning achievements, knowledge and preparedness for performing tasks. Credentials are diverse with regard to their scope, status and purpose.

A large subset of credentials can be referred to as **macro-credentials**: generally, these include degrees, diplomas, certificates and licences, often awarded by accredited, recognised or regulated educational and other institutions. They indicate learning achievement of a broad and transferable body of knowledge and technical proficiency and often take a number of years to complete. While some are pursued for personal or general educational advancement, others are associated with qualifying to practice a particular profession or career path.

Another large subset of credentials can be referred to as **micro-credentials**: these are typically focused on a specific set of learning outcomes in a narrow field of learning and achieved over a shorter period of time. Micro-credentials are offered by commercial entities, private providers and professional bodies, traditional education providers, community organisations and other types of organisations. While many micro-credentials represent the outcomes of more traditional learning experiences, others verify demonstration of achievements acquired elsewhere, such as in the workplace, through volunteering, or through personal interest learning. Micro-credentials are often recognised as an efficient way to upskill workers across the lifespan.

A micro-credential:

1. is a record of focused learning achievement verifying what the learner knows, understands and or can do;
2. includes assessment based on clearly defined standards and is awarded by a competent organisation;
3. has stand-alone value and may also contribute to or complement other micro-credentials or macro-credentials, including through recognition of prior learning.

Appendix 3: Selected recent micro-credential definitions used as a basis for version one

Malaysian Qualifications Agency: A micro-credential is defined as 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 (Malaysian Qualifications Agency 2020)

MICROBOL, Europe: A micro-credential is a small volume of learning certified by a credential. In the EHEA context, it can be offered by higher education institutions or recognized by them using recognition procedures in line with the Lisbon Recognition Convention or recognition of prior learning, where applicable. A micro-credential is designed to provide the learner with specific knowledge, skills or competences that respond to societal, personal, cultural or labour market needs. Micro-credentials have explicitly defined learning outcomes at a QF-EHEA/NQF level, an indication of associated workload in ECTS credits, assessment methods and criteria, and are subject to quality assurance in line with the ESG (Cirlan and Loukkola 2020)

MicroHE, Europe: A micro-credential is “a documented statement awarded by a trusted body to signify that a learner upon assessment has achieved learning outcomes of a small volume of learning against given standards and in compliance with agreed quality assurance principles. Micro-credentials express credit volume and they are referenced to the national qualification framework and the EQF. A micro-credential may be offered independent of the method of provision (face-to-face, online or blended learning) or the nature of learning (formal, non-formal, informal). Micro-credentials are owned by the learner and are sharable and portable in the format of a stand-alone certificate, a digital badge, or as part of a portfolio”. A micro-credential is a “sub-unit of a credential or credentials (could be micro, meso, mini, etc.) that could accumulate into a larger credential or be part of a portfolio” (MicroHE 2019)

European Commission: A micro-credential is a proof of the learning outcomes that a learner has acquired following a short learning experience. These learning outcomes have been assessed against transparent standards. The proof is contained in 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 the credits gained. Micro-credentials are owned by the learner, can be shared, are portable and may be combined into larger credentials or qualifications. They are under-pinned by quality assurance following agreed standards. (European Commission 2020)

European MOOC Consortium: In order to qualify as a micro-credential within this framework, a course must adhere to the following specifications: Have a total study time of no less than 100 hours and no more than 150 hours, including revision for, and completion of, the Summative Assessment; Be levelled at Levels 6-7 in the European Qualification Framework or the equivalent levels in the university's national qualification framework, or be levelled at Levels 4-5 and fulfil the criteria of the European Credit Transfer and Accumulation System; Provide a summative assessment that enables the award of academic credit, either directly following successful completion of a micro-credential or via recognition of prior learning upon enrolment as a student on a university's course of study; Operate a reliable method of ID verification at the point of assessment that complies with the university's policies and/or is widely adopted across the platforms authorised to use the CMF; Provide a transcript that sets out the learning outcomes for a micro-credential, total study hours required, EQF level and number of credit points earned. (European MOOC Consortium 2019)

OECD: Alternative credentials are “credentials that are not recognised as standalone formal educational qualifications by relevant national education authorities”. Characteristics of potential importance to learners, employers and policy makers: delivery modes; duration; validation and assessment processes; areas of focus; capacity to be embedded within or cumulate into larger credentials (p.10). (Kato, Galán-Muros et al. 2020)

International Council for Distance Education: Micro-credential: A credential issued for a relatively small learning project that consists of several modules in a given subject. This term implies that there is a related credential of greater scope offered by the institution. In some cases, micro-credentials have been defined by the issuing institution. These are closely associated and sometimes used interchangeably with ADCs. (International Council of Distance Education 2019)

UNESCO: Micro-credential. A term that encompasses various forms of credential, including ‘nano-degrees’, ‘micro-masters credentials’, ‘certificates’, ‘badges’, ‘licences’ and ‘endorsements’. As their name implies, micro-credentials focus on modules of learning much smaller than those covered in conventional academic awards, which often allow learners to complete the requisite work over a shorter period. In their most developed form, micro-credentials represent more than mere recognition of smaller modules of learning. They form part of a digital credentialing ecosystem, made possible by digital communications technologies establishing networks of interest through which people can share information about what a learner knows and can do. (Chakroun and Keevy 2018)

Colleges and Institutes Canada: A micro-credential is a certification of assessed competencies that is additional, alternate, complementary to, or a component of a formal qualification. Guiding Principles: Micro-credentials can be a complement to traditional credentials (certificate, diploma, degree or post-graduate certificate) or stand alone. Micro-credentials are subject to a robust and rigorous quality assurance process. Micro-credentials should represent competencies identified by employers/industry sectors to meet employer needs. Micro-credentials may provide clear and seamless pathways across different credentials (both non-credit and credit) and may be stackable. Micro-credentials are based on assessed proficiency of a competency, not on time spent learning. Micro-credentials are secure, trackable, portable and competency is documented in students’ academic records. Micro-credentials are to follow institutional approval processes. (Colleges and Institutes Canada 2021)

eCampus Ontario, Canada: Micro-credentials certify an individual’s achievements in specific skills and differ from traditional education credentials, such as degrees and diplomas, in that they are shorter, can be personalised and provide distinctive value and relevance in the changing world of work (Peter Gooch and Associates 2020). Also: A micro-credential is a certification of assessed learning associated with a specific and relevant skill or competency. Micro-credentials enable rapid retraining and augment traditional education through pathways into regular postsecondary programming. Micro-credentials will only be issued for competencies that are currently relevant to the labour market. Relevance is achieved through consultation and partnership between employers and post-secondary institutions. Micro-credentials will be verifiable, and integrity will be maintained. Once awarded, micro-credentials and associated data will be the property of the earner. Micro-credentials will be designed to facilitate continuous pathway for lifelong learning, where possible (eCampus Ontario)

Higher Education Quality Council of Ontario, Canada: A micro-credential is a representation of learning, awarded for completion of a short program that is focused on a discrete set of competencies (i.e., skills, knowledge, attributes), and is sometimes related to other credentials. (Pichette 2021)

Credential Engine, United States: A micro-credential is defined as an online educational credential that covers more than a single course but is less than a full degree (Credential Engine 2021). Amended⁵ as follows: Credential that addresses a subset of field-specific knowledge, skills, or competencies; often developmental with relationships to other micro-credentials and field credentials. (Credential Engine n.d.)

SUNY, United States⁶: Micro-credentials: verify, validate and attest that specific skills and/or competencies have been achieved; are endorsed by the issuing institution; having been developed through established faculty governance processes; and are designed to be meaningful and high quality (State University of New York (SUNY), 2019, p. 2).

New Zealand Qualifications Authority: A micro-credential certifies achievement of a coherent set of skills and knowledge; and is specified by a statement of purpose, learning outcomes, and strong evidence of need by industry, employers, and/or the community. They are smaller than a qualification and focus on skill development opportunities not currently catered for in the regulated tertiary education system. At a minimum, micro-credentials will be subject to the same requirements as training schemes or assessment standards and will also be required to: be 5–40 credits in size; have strong evidence of need from employers, industry and/or community; not duplicate current quality assured learning approved by NZQA; be reviewed annually to confirm they continue to meet their intended purpose (New Zealand Qualifications Authority 2017). A subsequent note references

⁵ Based on expert advice: A more accurate definition, arrived at through detailed collaboration of expert work groups, is the CTDL definition: <https://credreg.net/ctdl/terms#MicroCredential>.

⁶ This definition was subsequently added to the table based on expert recommendations.

‘stacking’ towards formal qualifications: “Programmes leading to qualifications may include micro-credentials as components of learning, provided the design of the programme is coherent and maps to the qualification outcomes and strategic purpose” (New Zealand Qualifications Authority 2021)

Australian Qualifications Framework Review: A micro-credential is a certification of assessed learning that is additional, alternate, complementary to, or a formal component of a formal qualification (Commonwealth of Australia 2019).

UK Quality Assurance Agency: Preliminary recommendations: Micro-credentials offer a formal opportunity to recognise professional skills in an academic setting. They are credit-bearing against a recognised level of the FHEQ and FQHEIS. They are subject to standard quality assurance mechanisms. While there are no upper or lower limits on the amount of credit that a micro-credential carries, it should not normally constitute an award in its own right on the current qualifications framework. There would be merit in exploring further: how micro-credentials might be recognised more formally, including how they interact with qualifications frameworks; the broader learning environment for a learner engaging with higher education through a micro-credential. (The Quality Assurance Agency for Higher Education 2020, The Quality Assurance Agency for Higher Education 2021)

References

- AI Group Centre for Education and Training (2021). Skills urgency: Transforming Australia's workplaces. North Sydney, Australian Industry Group.
- Antonaci, A., P. Henderikx and G. Ubachs (2021). "The Common Microcredentials Framework for MOOCs and Short Learning Programmes." *Journal of Innovation in Polytechnic Education* 3(1): 5-9.
- Bakhshi, H., C. Frey and M. Osborne (2015). Creativity vs robots: The creative economy and the future of employment.
- Beirne, E., M. Nic Giolla Mhichíl and M. Brown (2020). Micro-Credentials: An Evolving Ecosystem: Insights paper, Dublin City University.
- Bothwell, E. (2021). Williamson: 'dead-end' degrees give students 'nothing but debt'. *Times Higher Education*. London.
- Boud, D. and T. Jorre de St Jorre (2021). "The move to micro-credentials exposes the deficiencies of existing credentials." *Journal of Teaching and Learning for Graduate Employability* 12(1): 18-20.
- Brown, M., M. N. G. Mhichil, E. Beirne and C. M. Lochlainn (2021). "The Global Micro-credential Landscape: Charting a New Credential Ecology for Lifelong Learning." *Journal of Learning and Development* 8(2): 228-254.
- Brown, M., M. Nic Giolla Mhichíl, C. Mac Lochlainn, H. Pirkkalainen and O. Wessels (2021). Supporting the micro-credentials movement, ECIU White Paper on Micro-credentials, ECIU University.
- Buchanan, J., S. Allais, M. Anderson, R. A. Calvo, S. Peter and T. Pietsch (2020). The futures of work: what education can and can't do (Paper commissioned for the UNESCO Futures of Education Report), UNESCO.
- Chakroun, B. and J. Keevy (2018). Digital Credentialing: Implications for the recognition of learning across borders. France, United Nations Educational, Scientific and Cultural Organization.
- Cirlan, E. and T. Loukkola (2020). European Project MICROBOL: Micro-Credentials Linked to the Bologna Key Commitments. Desk Research Report, European University Association.
- Colleges and Institutes Canada (2021). Standard Definition of Micro-credentials and Guiding Principles for the development of Micro-credentials Standards, CiCan.
- Colleges and Institutes Canada (2021). The Status of Microcredentials in Canadian Colleges and Institutes: Environmental Scan Report.
- Commonwealth of Australia (2019). Review of the Australian Qualifications Framework Final Report 2019. Canberra, Commonwealth of Australia.
- Commonwealth of Australia (2020). Job-ready graduates: higher education reform package 2020. Canberra, Department of Education, Skills and Employment.
- Contact North (2020). Micro-credentials and the Skills Agenda. Ontario, Contact North.
- Côté, A. and A. White (2020). Higher Education for Lifelong Learners: A Roadmap for Ontario Post-Secondary Leaders and Policymakers. Ontario, Ontario 360.
- Credential Engine (2021). Counting U.S. postsecondary and secondary credentials. Washington, DC, Credential Engine.
- Credential Engine. (n.d., 5/28/2021 Release). "Micro-credential definition, Credential Transparency Description Language." Retrieved 26 June, 2021, from <https://credreg.net/ctdl/terms#MicroCredential>
- Department for Education (2021). Skills for Jobs: Lifelong Learning for Opportunity and Growth. London.
- Duklas, J. (2020). "Micro-Credentials: Trends in Credit Transfer and Credentialing." *British Columbia Council on Admissions and Transfer*.
- eCampus Ontario Micro-credential principles and framework. Ontario.
- ETUC - ETUCE (2020). Joint ETUC – ETUCE Position on Micro-credentials in VET and tertiary education.
- European Commission (2020). A European approach to micro-credentials – Output of the micro-credentials higher education consultation group - Final report. Luxembourg, European Commission.
- European Commission (2020). A European approach to micro-credentials – Output of the micro-credentials higher education consultation group - Final report. . Luxembourg.
- European MOOC Consortium (2019). The European MOOC Consortium (EMC) launches a Common Microcredential Framework (CMF) to create portable credentials for lifelong learners. Brussels.
- Fong, J., P. Janzow and K. Peck (2016). "Demographic shifts in educational demand and the rise of alternative credentials." Retrieved August 20: 2016.
- Frey, C. B. and M. Osborne (2015). Technology at Work: The Future of Innovation and Employment. UK, The Oxford Martin Programme on Technology and Employment
- Gallagher, S. R. (2018). Educational Credentials Come of Age: A Survey on the Use and Value of Educational Credentials in Hiring. Boston.

- Gish-Lieberman, J. J., A. Tawfik and J. Gatewood (2021). "Micro-Credentials and Badges in Education: a Historical Overview." TechTrends **65**(1): 5-7.
- Gratton, L. and A. J. Scott (2016). The 100-year life: Living and working in an age of longevity, Bloomsbury Publishing.
- Hanne Shapiro Futures, Tine Andersen and K. N. Larsen (2020). European Approach to Micro-credentials - Institutional Incentives to Develop and offer Micro-credentials in the EU - Annex 2.
- Hanne Shapiro Futures, Tine Andersen and K. N. Larsen (2020). A European approach to micro-credentials – Background paper for the first meeting of the consultation group on micro-credentials – Annex 1.
- Hollands, F. and A. Kazi (2019). Benefits and Costs of MOOC-Based Alternative Credentials: 2018 - 2019 Results from End-of-Program Surveys, Center for Benefit-Cost Studies of Education, Teachers College, Columbia University.
- Hollands, F. and A. Kazi (2019). "MOOC-Based Alternative Credentials: What's the Value for the Learner?" Educause Review.
- International Council of Distance Education (2019). Report of the ICDE Working Group on the Present and Future of Alternative Digital Credentials (ADCs), International Council of Distance Education.
- Kato, S., V. Galán-Muros and T. Weko (2020). The emergence of alternative credentials. Paris, OECD Publishing.
- Leaser, D., K. Jona and S. Gallagher (2020). "Connecting Workplace Learning and Academic Credentials via Digital Badges." New Directions for Community Colleges **2020**(189): 39-51.
- Malaysian Qualifications Agency (2020). Guidelines to Good Practices: Micro-credentials in Malaysia, Malaysian Qualifications Agency.
- Marks, M. and J. Sparkman The New Era of Public-Private Partnership in Higher Education.
- Maxwell, N. and S. Gallagher (2020). Building a Consistent Terminology in the Market for New Credentials. New Directions for Community Colleges. **189**: 103-107.
- MicroHE (2019). Challenges and opportunities of micro-credentials in Europe: Briefing Paper on the Award, Recognition, Portability and Accreditation of Micro-Credentials: an Investigation through Interviews with Key Stakeholders & Decision Makers **Version 6 ed**.
- New Zealand Qualifications Authority. (2017). "Recognising learning for credit: Guidelines for the recognition and award of credit for learning." Retrieved 4 June, 2021, from <https://www.nzqa.govt.nz/studying-in-new-zealand/tertiary-education/recognising-learning/>.
- New Zealand Qualifications Authority. (2021, 27 January). "'Stacking' micro-credentials toward qualifications." Retrieved 14 June, 2021, from <https://www.nzqa.govt.nz/about-us/news/stacking-micro-credentials/>.
- Noyes, J. A., P. M. Welch, J. W. Johnson and K. J. Carbonneau (2020). "A systematic review of digital badges in health care education." Medical education **54**(7): 600-615.
- OECD (2019). Getting Skills Right: Future-Ready Adult Learning Systems. Getting Skills Right. Paris, OECD Publishing.
- OECD (2020). Resourcing Higher Education: Challenges, choices, consequences. Higher Education. Paris.
- OECD (2021). OECD Skills Outlook 2021: Learning for Life. Paris, OECD Publishing.
- Oliver, B. (2019). Making micro-credentials work for learners, employers and providers. Melbourne, Deakin University.
- Oliver, B. (2020). Coursera Professional Certificates and Google Career Certificates: A snapshot analysis. Melbourne.
- Orr, D., M. Pupinis and G. Kirdulytė (2020). Towards a European approach to micro-credentials: A study of practices and commonalities in offering micro-credentials in European higher education, NESET report, Executive Summary. Luxembourg, Publications Office of the European Union.
- Østergaard, S. F. and A. G. Nordlund. (2019, 20 December 2019). "The 4 biggest challenges to our higher education model – and what to do about them." Retrieved 4 July, 2021, from <https://www.weforum.org/agenda/2019/12/fourth-industrial-revolution-higher-education-challenges/>.
- Peter Gooch and Associates (2020). Micro-certifications: Policy and Regulatory Context in Ontario. Toronto, eCampus Ontario.
- Pichette, J., Brumwell, S., Rizk, J., Han, S. (2021). Making sense of microcredentials. Toronto, Higher Education Quality Council of Ontario.
- Presant, D. (2020). Micro-certification Business Models in Higher Education.
- Pushpanadham, K. (2019). "Massive Open Online Courses: The emerging landscape of digital learning in India." International Institute for Educational Planning.
- Ralston, S. J. (2021). "Higher Education's microcredentialing craze: a postdigital-Deweyan critique." Postdigital Science and Education **3**: 83-101.

- Reich, J. and J. A. Ruipérez-Valiente (2019). "The MOOC pivot: What happened to disruptive transformation of education?" Science **363**(6423): 130-131.
- Resei, C., C. Friedl, T. Staubitz and T. Rohloff (2019). Micro-credentials in EU and global.
- Roy, S. and D. Clark (2019). "Digital badges, do they live up to the hype?" British Journal of Educational Technology **50**(5): 2619-2636.
- Schwab, K. (2017). The fourth industrial revolution. Geneva, Portfolio: Penguin.
- Selvaratnam, R. and M. Sankey (2019). "Micro-credentialing as a sustainable way forward for universities in Australia: Perceptions of the landscape." ACODE 80 Whitepaper.
- Shah, D. (2020, 14 December 2020). "The second year of the MOOC: A review of MOOC stats and trends in 2020." Retrieved 4 July, 2021, from <https://www.classcentral.com/report/the-second-year-of-the-mooc/>.
- Stefaniak, J. and K. Carey (2019). "Instilling purpose and value in the implementation of digital badges in higher education." International Journal of Educational Technology in Higher Education **16**(1): 1-21.
- The Quality Assurance Agency for Higher Education (2020). Members' Project Update: Micro-credentials.
- The Quality Assurance Agency for Higher Education (2021). Which way for micro-credentials? Quality Compass. London, Quality Assurance Agency.
- UNESCO Institute for Lifelong Learning (2020). Embracing a culture of lifelong learning: contribution to the Futures of Education initiative, UNESCO Institute for Lifelong Learning, Hamburg, Germany.
- Walker, K. (2020). "A digital jobs program to help America's economic recovery." <https://blog.google/outreach-initiatives/grow-with-google/digital-jobs-program-help-americas-economic-recovery/> Accessed 1 August 2021.
- West, R. E., T. Newby, Z. Cheng, A. Erickson and K. Clements (2020). "Acknowledging all learning: Alternative, micro, and open credentials." Handbook of Research in Educational Communications and Technology: 593-613.
- Wheelahan, L. and G. Moodie (2021). "Analysing micro-credentials in higher education: a Bernsteinian analysis." Journal of Curriculum Studies **53**(2): 212-228.

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