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THE ROLE OF MICROCREDENTIALS IN MODULAR LEARNING

A Report by the Lifelong Education Commission



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ABOUT THE LIFELONG EDUCATION COMMISSION

The Rt Hon Chris Skidmore MP launched the Lifelong Education Commission under his Chairmanship at ResPublica in February 2021. The Commission will seek to recommend how the multiple and varied barriers to lifelong learning can be removed, what future investment is needed to support this, and what regulatory change is needed to ensure the maximum possible flexibility that will benefit learners and deliver on the promise of a whole system change for education post-18.

The commission will focus on how post-18 education and skills ought to be designed, so that both Higher and Further Education institutions are valued, but also how the individual learner can be better empowered to make decisions and undertake their learning. Lessons can be learnt from abroad, as well as from mistakes made in the past, but post-Covid, the need to act differently for different outcomes will be essential.

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FOREWORD

by The Rt. Hon. Chris Skidmore MP - Chair of the Lifelong Education Commission

To win big, we have to think small. That is the message of one of the most significant new developments in Further and Higher Education: the advent of microcredentials. Gone are the days when gaining higher knowledge and skills meant sitting through multi-year degree programmes. Now, learners increasingly have the chance to expand their horizons in targeted ways, via courses tailored precisely to what they need in their lives and careers.

With the passing of the Skills and Post-16 Education Act, the UK's learning landscape has shifted decisively towards a new logic of agile, flexible qualifications. Monolithic courses at level 4 and above are being broken down into modularised equivalents. Comprehensiveness is being replaced by specialisation. And more and more of our country's great universities are rightly embracing this new direction of travel.

But the rise of microcredentials also raises several key questions for Government. This style of micro-learning is new and fast-evolving, which means there is no settled definition of what even counts as a microcredential. There is also currently only limited oversight over what micro-learning courses are available in the UK — which makes it all the harder for learners to stay fully and accurately informed about the choices at their disposal.

Microcredentials may be a new frontier in higher learning, but we cannot afford to leave them a 'Wild West' zone in the long run. Instead, they need to be brought into the mainstream of HE as soon as possible. That means arriving at a clear definitional framework for microcredentials which all HE institutions adopt to describe the modular, small-credit courses they offer.

This definition needs to strike a careful balance. It has to be broad enough to capture different ways of setting up courses as microcredentials: part-time, in-work, evening or weekend, hybrid or online. And it has to distinguish microcredentials as micro-learning opportunities from other related learning products such as MOOCs and skills bootcamps, from courses at level 3 and below, and from other learning environments (such as the private sector).

When designing this definition, we must not forget that the primary aim of higher learning is to give workers the advanced abilities and understanding they need to take up high-level, high-wage jobs. Microcredentials at level 4 and above are meant to allow workers to reach and stay at the cutting edge of their chosen industries: to refresh, upskill, reskill, and retrain in light of technological advances.

Ultimately, microcredentials are intended as a way of bridging the needs of employers and employees, especially at the local but also the national level. So, getting their definition right cannot happen without including businesses, trade unions and learners' groups in the process of designing and promoting the value of microcredentials to local workers.

This gives the partnerships behind Local Skills Improvement Plans a key role in getting the new opportunities for micro-learning right. Microcredentials should be designed with local workforces and local economies in mind, and must prepare learners for future jobs in growth sectors and reverse decline in strategic industries. The best way to put this in motion is through a series of regional pilots that can act as flagships for this model of lifelong micro-learning.

These local partnerships can ensure that microcredentials provide a carefully-balanced programme of learning, by sharing 'best practice', coordinating syllabi, and pooling partners' strengths in technical and academic teaching. They are also central to removing the hurdles that prevent learners from transitioning smoothly between qualification at successive levels, by allowing for clear and straightforward credit transfer between institutions.

Part of this will be addressing how microcredentials fit together. Can they be stacked together to form a 'bigger' award, perhaps even a qualification in the traditional sense? Are they like 'stickle bricks', where any number of microcredentials at any level can be combined together? Or are they more like 'Lego bricks', with clear, specific requirements about how introductory, intermediary, advanced and 'capstone' courses build on top of each other?

Government has its own part to play in making sure learners get the most out of the opportunities that these new microcredential frameworks offer. The policy environment that the Skills Act has introduced certainly offers fertile ground for microcredentials with its focus on flexible modular provision. But major questions remain about the barriers to access learners face due to burdensome bureaucracy and arbitrary restrictions on which small-credit courses are eligible for Lifelong Loan Entitlement funding.

While Government can take clear steps to remove these negative incentives on uptake of microcredentials, it can also do more to give learners positive incentives in tandem. The evidence indicates that microcredentials will be vastly popular with graduates looking to top up their skills and

pursue continuing professional development. But they can also act as a route back into learning for many adults. Providing opportunities for face-to-face training and careers advice for such learners is a vital aspect of designing the partnerships that will support micro-learning.

All in all, microcredentials have the potential to unleash a real skills revolution across the UK, by providing access to bite-sized higher learning that can satisfy the reskilling and upskilling needs of the UK economy. The onus is now on Government, HE institutions, and businesses to work together to give modularised micro-learning the best possible chance of success.



EXECUTIVE SUMMARY

INTRODUCTION

In this report the Lifelong Education Commission seeks to explore the emerging role of microcredentials in modular learning and how a common understanding can enable alternative pathways to higher level qualifications in the UK.

WHAT ARE MICROCREDENTIALS?

'Micro' credentials are small units of learning which are different in their size, complexity and duration of learning to traditional 'macro' credentials including formal qualifications such as certificates, diplomas or degrees. There are, however, many different definitions and descriptors that are often used interchangeably. Consequently, 'microcredentials' have been referred to as an umbrella term for a wide range of learning products, including digital badges, nano-degrees, micro-masters, massive open online courses (MOOCs) and short courses.

This broad understanding of microcredentials incorporates various characteristics, many of which can be shared, although not all. For example, they can be delivered online or face-to-face, by different types of providers — universities, commercial, private and professional bodies. They can be free to the user or fee charging. They can be formally assessed and issue certificates or units of academic credit, although they are not always a required feature or outcome of learning. The conflation of various learning products and terms has contributed to the confusion about the relative merits of microcredentials and where they should fit within mainstream education and skills.

In response to this, numerous international organisations, including UNESCO and the European Union, are seeking to develop greater consensus around a common microcredential definition. These institutions make clear that a microcredential should be a documented statement awarded by a trusted

body to signify that a small volume of learning has been assessed against agreed standards and referenced within agreed Qualification Frameworks. Building on this understanding the Quality Assurance Agency (QAA) has outlined characteristics for higher education institutions in the UK, identifying microcredentials as units of learning that carry a small amount of academic credit, which could be stacked to form a recognised qualification. In this context microcredentials are clearly defined in distinction to other products that are not formally assessed and accredited.

WHY ARE THEY NEEDED?

The UK Government's focus on modular, flexible, lifelong learning is designed to address the skills needed to drive higher levels of productivity. Microcredentials could be an important part of this approach, allowing employees and businesses to engage in bite-sized learning that is targeted on specific industry needs. Their short, focused design could enable an agile response to current and future skills gaps. As jobs and the demand for skills continue to change, people will continually need to retrain, reskill or redeploy to remain economically competitive.

Microcredentials can also offer a different approach to traditional education and training, a more accessible and affordable route to continued learning, that can encourage greater uptake by adults, and provide another pathway to higher education. A culture of continuous learning, with modules and microcredentials at its centre, could place learners within a system that is personalised and inclusive and which can encourage the development of disparate skills that are adaptable to a life of learning and work.

THE SUPPLY AND DEMAND FOR MICROCREDENTIALS

There is relatively little public awareness of microcredentials. While most learners have not heard of microcredentials, the demand for alternative forms of education – particularly online — is increasing. The Covid-19 pandemic increased this trend dramatically, although it is difficult to predict how this interest will pan out or how it will impact other forms of education and training. International data on adult learners participating in non-degree education, including MOOCs and other short courses, indicates that they are more likely to: have existing higher level qualifications; be in work and earning at or above median wage; be able to afford to pay tuition fees; and have other forms of support to allow them to study e.g. childcare.

Microcredentials are not well understood by employers, although there is evidence that businesses are looking for more flexible, bite-sized training. The survey conducted by the British Chambers of Commerce, for this report, found that:

- Over a third of all businesses (36%) indicated that they would need further information before considering microcredentials.
- 17% of all employers had some level of awareness — only 2% indicated that employees had studied microcredentials.
- Once explained, over a quarter of all businesses indicated that they would be 'likely' to use forms of micro-learning in the next 12 months, if available.
- A quarter (26%) indicated that microcredentials would be considered when recruiting new employees.

- Almost one third (29%) indicated that endorsement by an industry body would positively influence their decision to invest in microcredentials or recognise their value.

The number of microcredentials offered on learning platforms (FutureLearn, Coursera, edX etc.) are continuing to rise, with a large share of these developed by private providers, in addition to new 'own-brand' learning platforms such as Google, Amazon, Facebook and LinkedIn. However, higher education institutions are currently the leading providers of microcredentials. Early adopters are responding to competition from alternative sources and the threat that these present to traditional degrees, as well as the wider commercial opportunities. The role of further education in the design and delivery of microcredentials is relatively under-developed. There is greater scope for involvement by further education, in partnership with accrediting universities, although the costs of developing new learning products are a barrier which the sector would need to overcome.

PATHWAYS TO HIGHER LEARNING

There is a growing divide among adult learners in the UK. Those who left school for higher education, and especially those that enter the professions, are more likely to participate than those who did not. Microcredentials can provide an effective way to reach all potential learners, offering flexible pathways to lifelong learning and higher education while providing an agile response to industry needs, although this will require additional personal and financial support for those who have no previous experience of higher education.

DESIGN AND ACCREDITATION

Microcredentials can be standalone experiences or a way in which learners can scale and stack units of learning into full qualifications. This can be achieved in different ways and many universities in the UK have already established a microcredential offer. Staffordshire University have designed a system to learn and build credit at different levels (4 to 7) through individually assessed blocks or modules of learning. As with the Staffordshire model the stacking potential of microcredentials will need to be more than the simple accumulation of credit to map against recognised qualification frameworks if they are to be fitted together in a coherent way.

The development of this new market for learning will require some conformity to a common definition, if microcredentials are to have a shared meaning and value among learners and employers. This is particularly the case where credit is transferred between institutions. The QAA has identified two possible approaches that would enable microcredentials to be built into a macro-credential.

- (1) **Consortia:** A group of higher education providers that agree to recognise each other's microcredentials and enable a learner to move freely between them.
- (2) **Capstone:** A final course or module, to draw the different elements together, where the intention is to form an integrated whole. This could also help mitigate the limited 'shelf life' of academic credit.

Higher education providers are responsible for meeting the requirements placed upon them by numerous funding and regulatory bodies. If providers are to support a step-on, step-off approach to lifelong learning then administrative processes will need to be less burdensome, by

making data requirements for students and learning outcomes proportionate to the learning experience.

FUNDING AND COSTS

The introduction of the Lifelong Loan Entitlement, in England, is a policy designed to address the financial barriers to adult learning. If microcredentials are to play a role in upskilling the workforce and driving productivity, then these forms of accredited learning must be eligible for loans, and these loans should be available to all adults regardless of prior attainment. Fees should be proportionate to full qualifications based on the amount of credit they bear, as far as this is practicable. The Lifelong Loan Entitlement will need to be integrated with the existing student finance system to create a unified credit-based funding system that does not distinguish between different modes of study and provides equal access and support for learners regardless of how they learn – full or part-time – or where learning takes place.

There is limited evidence to inform learners about the likely return on their investment should they take out a loan for microcredentials. Future demand, from learners and employers, as well as further investment in the supply of microcredentials, will be dependent on a better understanding of their benefits and how these are promoted and integrated within the existing skills system.

Few employers are investing in micro-learning, across the OECD. A survey of Coursera and edX courses (2019) found that employers paid the fees for 4% of learners and contributed towards the fees of another 1%. On average employers in the UK are investing less in staff training than their international competitors. Finding the funds to invest in training is

a key challenge for many small employers and there is an increasing dependency on the skills system, funded through public monies or personal loans, to provide job-ready candidates. Incentives are needed for employers to invest in this new flexible model of skills training, which employers say they want. Public funding to kick-start the design and development of microcredentials and to stimulate uptake, until the benefits can be realised by employers, is part of the answer. But other policy solutions could be made available, including tax incentives.

There is little publicly available information on the costs of designing and developing microcredentials, however, figures based on MOOCs suggest that these should not be underestimated. There is an argument for higher education providers to develop these products on a commercial basis, using their cash reserves, especially if the intention is to make a profit. However, where institutions are seeking to address significant skill deficits in difficult local labour markets which are experiencing signs of market failure, access to public funding (e.g. Shared Prosperity Fund, Adult Education Budgets) should be considered as a means to levelling up — especially where funding would help to subsidise or discount the costs of training for businesses and learners.

RECOMMENDATIONS

1. Government (DfE) should undertake a mapping exercise of all micro-learning courses in the UK to gather evidence and inform future policy making and funding for this form of learning.
2. Government should consider a regional pilot to test ideas, including peer consortia for the co-design, co-development, co-delivery and co-funding of microcredentials to level up skills.
3. Universities UK, AoC, and the Collab Group should promote national dialogue to mature the level of awareness, understanding and potential of microcredentials in the UK.
4. Higher education providers should promote these forms of learning more widely with employers in local labour markets and seek to recruit harder-to-reach students.
5. Adult careers advisors will also need to understand and communicate the benefits of micro-learning to enable learners to make choices.
6. Higher education institutions in the UK should move towards a common definition.
7. Government should ensure that microcredentials, with a value of less than 30 credits, should qualify for funding via the Lifelong Loan Entitlement.
8. Units of accreditation for a microcredential should be costed at a price that is proportional to fees for an undergraduate degree.
9. Higher education providers should consider subscription-based funding models.
10. Government should also consider tax incentives for employers to invest in this form of workforce training.
11. Local government and Mayoral Combined Authorities should use devolved funds to invest in the development of microcredentials as affordable solutions to local skill needs.
12. Government and regulatory bodies with oversight of higher education should adopt a streamlined approach to regulation and data requirements of those taking microcredentials.



1. INTRODUCTION

In this report the Lifelong Education Commission seeks to explore the emerging role of microcredentials in modular learning and how they can help improve adult participation in higher education. The research has been sponsored by Staffordshire University, an institution that has already launched an ambitious programme of short courses and industry-recognised microcredentials that seek to address the skills needs of businesses in the region and facilitate greater access and take up of education and training by learners of all ages.

The specific aims of this report are to better understand what is meant by the term ‘microcredential’ and the scope of their potential application in the UK’s skills system, particularly as it applies to higher learning (level 4 and above). It examines the demand for this form of learning from employers and learners and assesses what is needed for the future supply of microcredentials including: funding implications; qualification design; accreditation; credit transfer; and how microcredentials can enable alternative pathways to achieving full qualifications.

The report makes policy recommendations to government that can help to integrate the flexibility which microcredentials offer as a vital component of the UK’s mainstream education system.



2. WHAT ARE MICROCREDENTIALS AND WHY ARE THEY NEEDED?

As the term implies, 'micro' credentials are small units of learning which are different in their size, complexity and duration of learning to traditional 'macro' credentials including formal qualifications such as certificates, diplomas or degrees.

Microcredentials have been around for some time in many various forms, but they have been gaining momentum and international profile over the past decade. The word first appeared in a Google search in 2013,¹ although the concept of short, bite-sized learning is not in itself new and can be traced back much further. The example of St. John's Ambulance, which has been offering short courses in basic first aid for well over a century, is often cited.² Higher and further education institutions have long provided short courses, both credit and non-credit bearing, to support continuing professional development and 'leisure learners'.

Interest in the UK has been stimulated by the Skills for Jobs White Paper and the Government's intention to raise adult participation in training through the provision of a modular skills system that can provide opportunities for flexible, lifetime learning. There are, however, significant differences in the understanding and definition of microcredentials, between institutions, and within and across various countries. There are also distinctions to be drawn about how microcredentials should fit within the wider skills ecosystem and whether they should be formally recognised or carry academic credit.

2.1 TYPOLOGY

There is a wide range of learning products and experiences with labels and descriptors that are commonly used, often interchangeably, and which can fall under what has been referred to as 'a broad umbrella term' of microcredentials.³ These include digital badges, open badges, online certificates, alternative credentials, nano-degrees, micro-masters, modular qualifications, massive open online courses (MOOCs) and short courses. Yet within these various types there are some distinct differences.

2.1.1 ONLINE LEARNING

Traditional distance learning, via correspondence, was rapidly expanded with the advent of the internet. New forms of e-learning changed both the content of learning and how it is taught. Massive open online courses (MOOCs) emerged from the open educational resources (OER) movement and the development of new digital platforms which made learning, teaching and research materials freely available to the public. MOOCs aimed to provide limitless content that is open and free to anyone, anywhere, regardless of prior learning and which can be started at any time and completed within the learner's time frame.

An important aspect of the early development of MOOCs was the focus on a connectivist philosophy to create a community of learning and to release materials at no cost to the user under an open licence, that permits re-use, re-purpose, adaptation and redistribution by others. However, MOOCs have since evolved into products that more resemble traditional courses, for example:

- **'Micro-masters'** - Originally conceived and developed at MIT these are a series of online graduate level courses to develop standalone skills for career advancement or earn graduate level credentials that are now available and accredited by a range of universities.
- **'Nano-degrees'** – A course of vocationally focused studies that can be completed online and stacked over time. These courses have prepared learners for careers in Information and Communication Technology industries but can be extended into other professional domains.

The online learning market has expanded with the emergence of platforms such as FutureLearn, edX, and Udacity that provide extensive content including modules for continuing professional development, as well as large corporates such as Google, Microsoft, Amazon and IBM that have entered the digital learning space, providing industry specific learning products for free.

In many respects these digital products, that have evolved from second-generation MOOCs, are seen as the precursor to microcredentials. There are, however, aspects of their design and purpose to which not all microcredentials will conform, especially those that seek to: use face-to-face teaching methods, control for content (including 'intellectual property') and enrolment, charge fees, assess and issue certificates or credit.

2.1.2 ASSESSMENT AND ACCREDITATION

There are three core elements of education systems:

- **Curriculum** – what is taught, the course of study or content.
- **Pedagogy** – how the study is taught (whether online, college based or hybrid) in terms of underpinning theories of learning.
- **Assessment and accreditation** - how performance and progress is evidenced.

There are few theoretical differences between ‘micro’ and ‘macro’ credentials when it comes to curriculum and pedagogy, although there is one important distinction in terms of design. Macro level credentials present more opportunity to deliver ‘whole course’ outcomes which are much more difficult to plan through micro modes of delivery. Microcredentials can differ by size and complexity, but many will still conform to conventional ideas about course content and learning methods, although it is recognised that the framing of microcredentials as a form of short course is a narrow concept which overlooks other learning opportunities such as work experience, internships, on-the-job training and portfolio-based professional learning.

However, formal education leading to qualifications is traditionally dependent on recognised quality systems for the assessment and accreditation of learning outcomes and prior learning. This is where the greatest variance between ‘micro’ and ‘macro’ is observed. With many forms of so-called microcredentials, assessment is not always required or standardised – they can often be self-assessed — while certificates of completion, qualifications or accreditation are not always a necessary or required outcome of learning.

Open or **digital badging** has developed, increasingly via online learning platforms, as a means to validate learning and for trainers, educators, community groups and industry organisations to reward participants for skills obtained in professional development or formal and informal learning.⁴ Badging is an easy way of making visible competency-based skills which may be the result of prior learning and experience. But their validity is not without criticism. They are not always viewed as ‘trusted credentials’ with continued scepticism about how learning, experience or skills are observed and assessed. There is also concern over how to make sure that the badge is awarded to the person who completed the assignment, although digital tracking can authenticate Open Badges with a verifiable link back to the issuer.

Nano-credentials are another form of assessing competences (knowledge, skills and dispositions) that cannot easily be assessed or captured using traditional metrics (e.g. exams, dissertations). Assessment involves observation by one or more witnesses that can add up to evidence of competency (e.g. leadership, project management). A nano-credential is simply a claim that a certain criterion has been met. LinkedIn has a function to allow members to endorse the skills of others in their network by clicking on a button to endorse skills. Having multiple endorsements, awarded by different people, on different occasions, can provide confidence that the criterion has been met.

2.1.3 THE DIFFERENT CHARACTERISTICS OF MICROCREDENTIALS

It is clear from the literature that there are many different interpretations of microcredentials within and between different countries as well as between different types of education providers – universities, commercial, private and professional bodies. Many can share particular characteristics but not all. The following table summarises the various features that have been attributed to this evolving term.

Free	Fee charging	
Online	Face-to-face	Hybrid/Blended
Formal	Informal	
Open to all	Closed	
Pre-assessed	No prior learning or assessment	
Structured course content	Unstructured - experiential	Competency based
Independently assessed	Self-assessed	Non-assessed
Accredited	Non-accredited	Quasi - badged
Stackable	Standalone	Both
Alternative to formal quals	Supplementary to formal quals	Embedded in formal quals
Industry endorsed	Industry designed	Neither or both

2.2 DEFINITIONS

The conflation between various learning products and the fact that there is – as yet – no universally accepted definition has contributed to the confusion when discussing the relative merits of microcredentials and where they should fit with the education and skills system.

2.2.1 UNESCO

In an effort to address this situation UNESCO recently initiated a worldwide study with approximately 50 education specialists to develop greater consensus around a common microcredential definition.⁵ The study reviewed and selected a range of international definitions from leading countries and regions (including the United States, Canada, Australia, New Zealand, Malaysia and the UK). The preliminary report proposes the following:

UNESCO definition

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 subset of credentials can be referred to as microcredentials: 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. Microcredentials are offered by commercial entities, private providers and professional bodies, traditional education and training providers, community organisations and other types of organisations. While many microcredentials 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. Microcredentials are often promoted as an efficient way to upskill workers across the lifespan.

A microcredential:

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 standalone value and may also contribute to or complement other microcredentials or macro-credentials, including through recognition of prior learning; and
4. Meets the standards required by relevant quality assurance.

The proposed definition is not officially endorsed by UNESCO; rather it is the outcome of a preliminary study that may be used to inform a formal position in due course. It is an attempt to distil what experts 'agree that they agree on' so far about microcredentials. However, there are areas of divergence, with less consensus around three issues:

- Whether recognition of prior learning should be included.
- How to describe or define 'trusted providers'.
- Whether quality assurance needs to be explicitly described.

There is also scope for interpretation about what constitutes 'standalone' value. Some institutions have developed frameworks for small units of learning (e.g. five units) but which only provide for standalone recognition if a larger volume of notional credits are formally assessed (e.g. 20 units). See the Staffordshire University case study, below.

The definition proposed by UNESCO is more of a clarifying statement, although critics have already highlighted that the proposed definition could apply equally to macrocredentials, with the exception of the focused learning component.

2.2.2 EU DEFINITION

One of the potential assets of microcredentials is their greater portability across geographic borders compared to more traditional vocational or occupational qualifications that are often not recognised by employers or professional bodies in different countries or regions. The freedom of movement for workers across the European Union is a central right and cornerstone of citizenship. The European Union has therefore taken a proactive role in developing the potential of microcredentials across Europe as part of a wider project to harness and integrate the architecture of the European Qualifications Framework (EQF) and the European Credit Transfer System (ECTS).

The development of the Common Microcredential Framework (CMF) for MOOCs alongside pilot initiatives such as the ECIU University transnational collaborative project⁶ is part of an ongoing programme to forge a more connected approach towards a common European-wide meaning. The following definition was proposed by the European Commission's Higher Education Consultation Group.⁷

EU definition

A microcredential 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. Microcredentials are owned by the learner, can be shared, are portable and may be combined into larger credentials or qualifications. They are underpinned by quality assurance following agreed standards.

Like the UNESCO statement, the EU definition goes some way to addressing some of the confusion and lack of common language around microcredentials. It makes clear that a microcredential is a documented statement awarded by a trusted body to signify that a small volume of learning has been assessed against agreed standards and in compliance with agreed quality assurance principles. Implicit in this working definition is that microcredentials should be referenced to, or embedded within, the European Qualification Framework (EQF) as well as National Qualification Frameworks.

2.2.3 QUALITY ASSURANCE AGENCY

The highly fragmented growth of microcredentials in the UK and the absence of a single definition or commonly agreed understanding have compelled the Quality Assurance Agency (QAA) to consider this issue. In their work to date the QAA has outlined the following characteristics for microcredentials.⁸

QAA Characteristic Statement

For the purposes of this characteristics statement and UK higher education, a microcredential is:

1. Credit-bearing against a recognised level of the Qualifications Frameworks;
2. Subject to standard quality assurance mechanisms; and
3. Whilst there are no upper or lower limits on the amount of credit that a microcredential carries, it should not normally constitute an award in its own right on the Qualifications Frameworks.

The characteristics described here are exclusively designed for higher education institutions in the UK, identifying microcredentials as units of learning that carry a small amount of credit that may not constitute an award in their own right, but which could be stacked to form a qualification should sufficient credit be accumulated. This is a statement which aims to position microcredentials within the mainstream of education and skills training. It therefore does not include any alternative offerings such as those other types or units of learning that are not formally constituted, assessed and accredited by 'trusted providers' or not recognised by agreed qualification frameworks. In this way the QAA characteristics address some of the issues raised by the UNESCO definition, while limiting the potential scope of microcredentials to a higher education environment.

Again, there are some issues here. Some higher education institutions in the UK may develop frameworks with wider interpretations, and envisage 'notional' credits of learning, which might not become credit bearing until they are formally assessed as part of a formal award. But these smaller units of unassessed learning would still be understood as microcredentials. In addition, higher education institutions may construct whole qualifications, built entirely from microcredentials (e.g. Staffordshire's postgraduate awards) following a quality process that ensures coherence. Managing the potential for the over-assessment of very small number of credits and the burdens that could be placed on this form of learning is important.

These are important aspects of design that any definition would need to accommodate, to enable flexibility within the system to stack micro-credits, accumulate credit and achieve an award. The principle of no upper or lower limit is also important, although it is recognised that microcredentials will be smaller than short

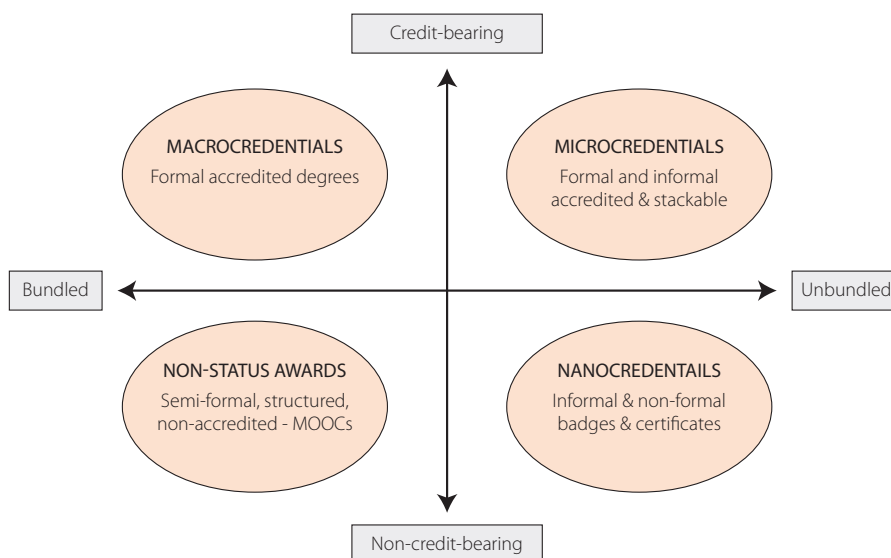
courses, such as those being trialled by the Government as part of the pathway towards the Lifelong Loan Entitlement, and which would typically bear up to 30 credits.

2.2.4 THE CREDENTIALS ECOLOGY

These positions are fluid, suggesting that the definition and application of microcredentials will continue to change and evolve in response to new developments. It is notable that none of the above (UNESCO, EU, QAA) has specified a number of hours or credit volume. Among the many international bodies only the European Mooc Consortium have done so, defining microcredentials as no less than 100 and no more than 150 study hours. In an attempt to explain and reconcile the current landscape, with its many various learning products and definitions, Brown, Mac Lochlainn, Nic Giolla Mhichíl and Beirne (2020) outlined a credential ecology (see Figure 1), which differentiates between credit-bearing and non-credit-bearing credentials, and credentials that are bundled and unbundled.

- Bundled: the aggregated unit of education provision (degree/qualification)
- Unbundled: education provision (degree/qualification) disaggregated into its component parts
- Credit-bearing: credit awarded on completion of course, in relation to the course’s contribution to a unit standard and/or (part) qualification.
- Non-credit bearing: no credit awarded on completion, these credentials are not applicable toward a larger accredited qualification or degree.

FIGURE 1: THE CREDENTIAL ECOLOGY



Source: Adapted from Brown, Mac Lochlainn, Nic Giolla Mhichíl, & Beirne, 2020⁹

2.3 WHY MICROCREDENTIALS ARE NEEDED

Notwithstanding the variations in definition and understanding about what constitutes a microcredential, there are also some significant differences in thinking about their application – why they are needed and how they should be used.

2.3.1 PRODUCTIVITY AND SKILLS

Skills are an important driver of economic growth. The world's most productive economies are also among the most highly educated and skilled. However, the UK has a longstanding problem with productivity, with too many firms – the so-called long tail of small businesses – struggling to adopt new technologies or management practices, and unable or unwilling to invest in skills. The UK Government's focus on modular, flexible, lifelong learning is designed to address these challenges that are contributing to lower levels of productivity compared to other nations.

Microcredentials could be an important part of this approach, allowing employees and businesses to engage in bite-sized learning that is targeted on specific industry needs. Their short, focused nature can enable an agile response to skills gaps and workforce development. Consequently, they have an important role in enabling businesses to embrace a culture of continuous skills acquisition to remain competitive and relevant.

2.3.2 FUTURE OF WORK AND THE 4TH INDUSTRIAL REVOLUTION

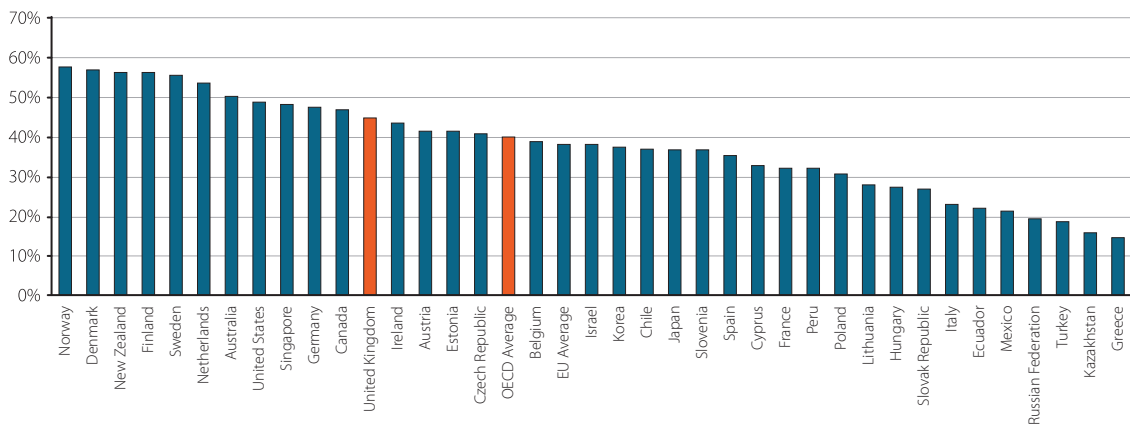
The changing nature of work and the skills needed to succeed in this world are predicted to shift at an unprecedented rate. Estimates vary greatly. The World Economic Forum has predicted that 50% of the global workforce will need retraining by 2025.¹⁰ The scale and pace of this transformation is disputed but it is nevertheless clear that the combined effects of globalisation, an ageing population and technological advancements, such as artificial intelligence and robotics, is already disrupting economies, displacing traditional occupations and sectors, but also creating new roles and opportunities.

As jobs and the demand for skills continue to change, it is anticipated that people will continually need to retrain, reskill, or redeploy to remain economically competitive. This need will drive more and new types of training that can meet specific requirements, aligned to industry and employment needs, and which can be delivered flexibly, timely and on-demand. Microcredentials are an alternative to the 'one size fits all' approach with the potential to offer small units of learning that are affordable and can be accessed as and when required.

2.3.3 LIFELONG LEARNING

The OECD has highlighted the need for lifelong learning to future-proof workers from demand shocks and long-term structural changes. Unfortunately, the UK is currently lagging the world's most productive economies in the level of participation in adult learning.

FIGURE 2: PARTICIPATION IN ADULT LEARNING BY COUNTRY AS PERCENTAGE OF 25-65 YEAR OLDS



Source: OECD 2021¹¹

Microcredentials offer a different approach to traditional education and training, one that can provide new models for lifelong learning, encourage uptake by adults and provide another pathway to higher education. Lifelong learning is not purely about employment prospects or economic utility. It should also encompass learning before a working life begins, and after it concludes. However, a culture of continuous learning, with modules and microcredentials at its centre, could place learners within a system that is personalised and inclusive and which can encourage the development of disparate skills that are adaptable to a life of learning and work.



3. THE SUPPLY AND DEMAND FOR MICROCREDENTIALS

Despite an emerging body of international literature, there is still relatively little public awareness and understanding about microcredentials. The current and future demand for such products is therefore difficult to assess. However, in thinking about what might influence the development of this market, there are three main stakeholder groups to consider: Learners, employers and education providers.

3.1 LEARNERS

While various surveys have identified that most learners have not heard of microcredentials,¹² the demand for alternative forms of education is increasing. Personalised learning and micro-learning were amongst the key global education trends identified by Euromonitor in 2017.¹³ By the end of 2019 there were over 110 million learners around the world enrolled in more than 13,500 MOOCs.¹⁴ The Covid-19 pandemic has seen these figures increase dramatically. In 2020 Holon IQ identified that MOOCs attracted almost 500 million visits from learners around the world in just a 30-day period while major MOOC platforms have reported increases of between 50% and 400% on previous years.¹⁵ It is difficult to predict how this interest in online learning will pan out or how it will impact other forms of education and training but it is clear that unprecedented events have stimulated learner demand.

The wide range of products that can be categorised as microcredentials makes it difficult to analyse a typical learner or identify who is most likely to be attracted to this type of learning. However, international data on

learners participating in adult education can provide some indicative evidence. Studies by the OECD indicate that those with higher levels of education are more likely to engage in further learning — 60% of tertiary-educated adults compared with 30% of adults without upper secondary education. Participation is relatively even across gender and different age groups - at around 45-50% for those aged 25-54, and approximately 35% for 55–64-year-olds.¹⁶

Existing evidence also shows that employment status can affect the likelihood of participating in education and training. According to the Survey of Adult Skills (PIAAC), those earning at the median and higher wage levels, and working for larger firms, tend to participate more than their counterparts.¹⁷ Higher levels of digital skills and technology-based problem-solving are also indicators of a greater propensity to engage in further education, and particularly online learning.¹⁸

Studies on MOOCs show similar findings. One survey identified that the average age of learners completing a MOOC-based microcredential was 36 years and that most participants already had at least an undergraduate degree (85%). In addition, about 80% of respondents claimed to already have either advanced or intermediate level knowledge in a short course topic.¹⁹

In addition, the data on MOOCs suggests that learners on short courses are similar to those on longer courses when analysed by field of study. Participants taking MOOCs courses in STEM subjects (including experimental physics, energy, mathematics and digital technology) are more likely to be male (70%).²⁰ Female learners represented only 14% of MIT online students in artificial intelligence and 20% of Coursera's computer science courses.²¹

Most learners on non-degree learning programmes self-finance their study. Few benefit from employer support. In a survey of respondents who had completed Coursera and edX courses in 2018 and 2019, it was found that employers paid the fees for 4% of respondents and contributed towards the fees of another 1%.²²

The picture emerging about learners on short courses is that they are more likely to:

- Be in work and earning at or above median wages
- Have existing qualifications
- Be able to afford to pay tuition fees
- Have other forms of support to allow them to integrate further study with existing commitments e.g. childcare
- Have a higher level of literacy and digital competence
- Already have some knowledge related to the course topic studied

This profile has implications for the development of microcredentials in the UK. Rather than widening participation and providing greater access and inclusivity, there is a risk that microcredentials could create a Matthew effect of accumulated advantage to those who already possess greater levels of human capital by providing a further differentiating factor in an escalating qualifications race.

If the UK skills revolution is to succeed, it will need to stimulate the demand for learning among all members of society. This includes those in search of a first experience of further or higher education, those in the workforce wishing to upskill and those looking to reskill after a period in or out of the labour market. Microcredentials have the potential to do this, but the barriers which some learners face will need to be mitigated. This places an obligation on providers to seek to recruit harder-to-reach students and to provide the support needed to engage in bite-sized learning.

3.2 EMPLOYERS

The evidence from numerous international sources suggests that microcredentials are not well understood by employers.²³ This is not helped by an unfamiliarity with the term or by the multiple forms which microcredentials can take.

Recruitment processes continue to emphasise full qualifications with 40% of UK employers indicating a desired preference for degrees on job descriptions, whether the job requires it or not.²⁴ However, there is strong evidence, both internationally and in the UK, that employers value experience over qualifications. Among UK businesses that invest in training, few are funding full qualifications,²⁵ while many SMEs are struggling to find training for industry relevant skills that are flexible and of manageable duration. The final report of the Workplace Training and Development Commission identified the priority to:

"Provide more focus on meeting the needs of all adults in work. This requires less emphasis on the achievement of full qualifications and more access to flexible, bite-size units of accredited learning."²⁶

3.2.1 UK BUSINESS SURVEY

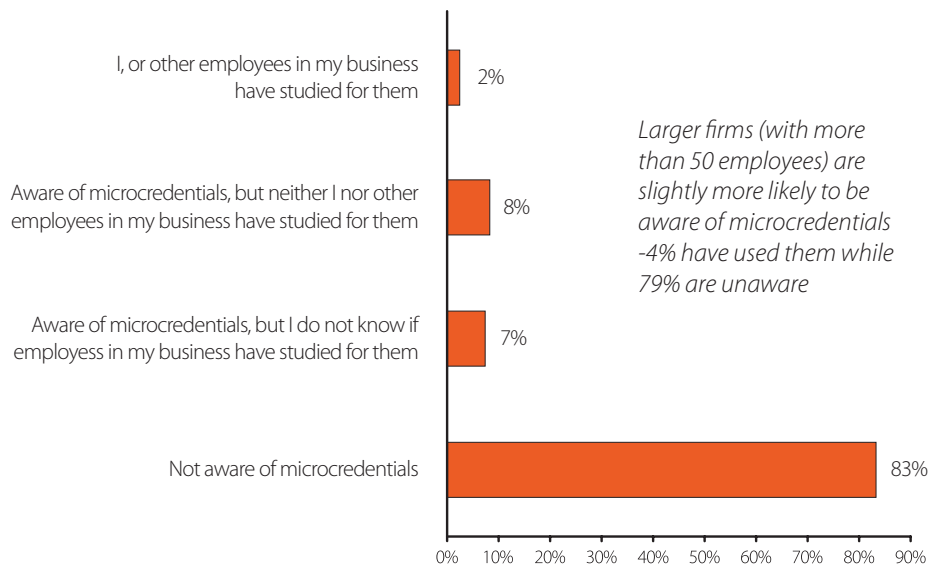
As part of this research, Staffordshire University commissioned the British Chambers of Commerce to include a series of questions in its Quarterly Business Outlook Survey.²⁷ The survey included 1,154 businesses in the UK, of which:

- 24% are manufacturing firms, 69% are service industries, and 7% are other industries (e.g. utilities, construction, agriculture).
- 93% are SMEs (with fewer than 250 employees)
- 50% report that they export their services or products.

AWARENESS OF MICROCREDENTIALS

The survey asked businesses how much they knew about microcredentials. 17% of all respondents expressed some level of awareness, compared to 83% who had not, although only 2% indicated that employees had studied microcredentials. Larger firms with more than 50 employees are slightly more likely to be aware (21%), with 4% having employees who had studied them.

FIGURE 3: HOW MUCH DO YOU KNOW ABOUT 'MICROCREDENTIALS'?

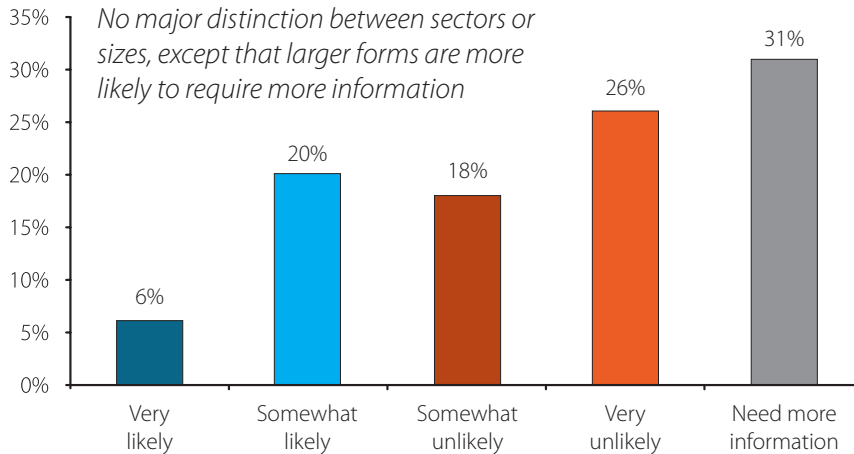


Source: British Chambers Business Outlook Survey, 2022 (Base: Total N = 1050)

THE PROPENSITY TO USE MICROCREDENTIALS

Having explained the purpose of microcredentials, what they are and how they are used,²⁸ businesses were then asked about their propensity to use microcredentials in the future. Over a quarter of all businesses indicated that they would be 'likely' to use them in the next 12 months. There were no major distinctions between types or size of business, except that larger firms (with more than 50 employees) are likely to require more information before being able to respond either way (37% of larger firms compared with 27% of smaller firms).

FIGURE 4: HOW LIKELY IS IT THAT YOUR BUSINESS WILL USE MICROCREDENTIALS IN THE NEXT 12 MONTHS?

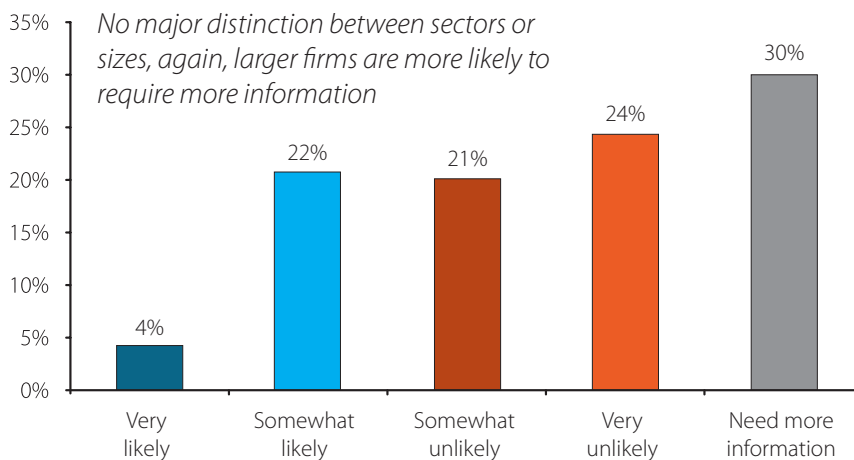


Source: British Chambers Business Outlook Survey, 2022 (Base: Total N = 1035)

THE ROLE OF MICROCREDENTIALS IN RECRUITMENT DECISIONS

Businesses were asked if microcredentials would be considered as part of a candidate’s qualification and skill set when recruiting new employees. Again, roughly one quarter of all respondents (26%) indicated this would be considered, although 30% of all firms would require further information before thinking about this. There was no major distinction between sectors or size of business, with larger firms more likely to require further information.

FIGURE 5: WOULD YOUR BUSINESS CONSIDER THE MICROCREDENTIALS OF CANDIDATES WHEN RECRUITING?

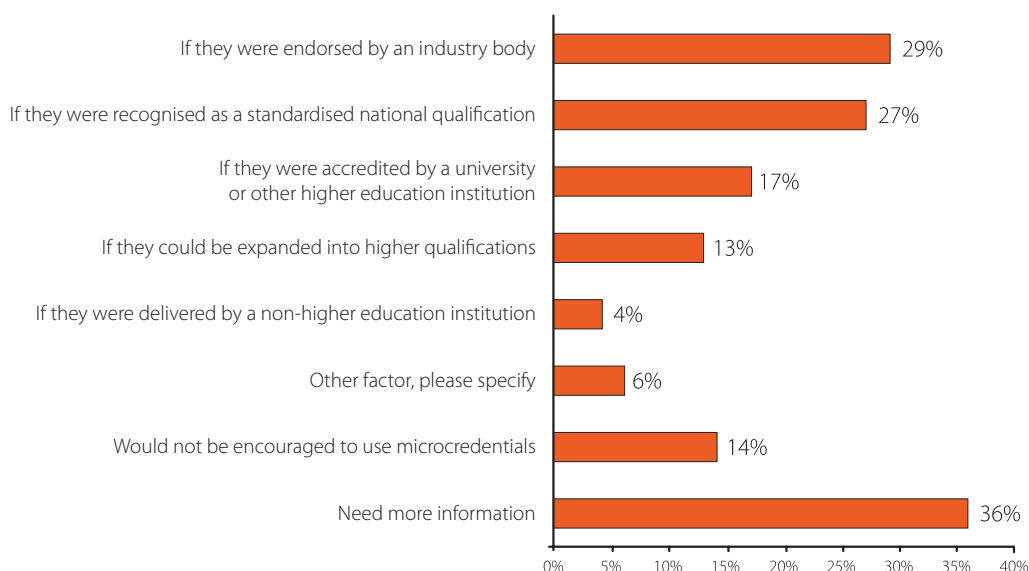


Source: British Chambers Business Outlook Survey, 2022 (Base: Total N = 1034)

HOW TO ENCOURAGE TAKE UP OF MICROCREDENTIALS

In thinking about what would encourage businesses to use or promote microcredentials, more than a third of all businesses (36%) indicated that they would need further information before considering this as part of their workforce training and development. Almost one third (29%) indicated that endorsement by an industry body would influence their decision, while recognition of microcredentials as a standardised qualification featured higher (27%) than other considerations. Fewer respondents were encouraged by formal accreditation or the facility to expand microcredentials into a higher-level qualification.

FIGURE 6: WHAT WOULD ENCOURAGE YOUR BUSINESS TO USE MICROCREDENTIALS?



Source: British Chambers Business Outlook Survey, 2022 (Base: Total N = 1026)

OTHER FACTORS

In terms of other factors that would encourage employers to use microcredentials, their relevance to specific job, business or industry needs were most cited by respondents. Industry specific courses that could help bridge skill gaps in the workforce or which could enhance or be a substitute for Continued Professional Development (CPD) were also mentioned.

Finance, costs and value for money were also significant factors for a number of employers, many of whom indicated that they would be most interested in microcredentials if they were free or if funding was available, either wholly or in part.

3.2.2 WIDER STAKEHOLDER VIEWS

Stakeholders in the West Midlands, where Staffordshire University is piloting microcredentials, were consulted as part of this research. Employer representative bodies expressed their in-principle support for the idea of microcredentials, while admitting to some confusion or unfamiliarity with the term. As the findings of the survey illustrate, there is clearly more to be done in promoting the concept of microcredentials and the potential benefits to workforce training and development.

The distinction between 'education' and 'training' and between deep or narrow and broad learning was highlighted with a view that microcredentials would be best suited to focused areas of expertise with an emphasis on the technical and practical application of skills rather than theoretical knowledge.

Both private and public sector employers in the West Midlands recognise the value of small units of learning that can be adapted to the changing needs of the local economy, tied to key sectors in local industrial strategies and skill needs identified in Local Skills Improvement Plans. There is, however, a recognised need for generic business management and leadership skills that are applicable to all sectors.

Wider stakeholders were ambivalent about the need for microcredentials to be credit-bearing or have academic status, although the value to learners was recognised in terms of the potential to continue learning and accumulate credit that might lead to a formal qualification. Thoughts on the potential role of microcredentials are elaborated in the following case study of one Staffordshire-based employer trading in the tech industry.

Case study: Tech employer

"A lot of the tech workforce don't have formal qualifications or degrees, although they are industry accredited and do a lot of CPD. There would be an advantage to formal learning but a lot of people in tech would do MCs anyway even if they are not credit bearing.

"There are benefits to all learning. Degrees are valuable whether in history or any other subject – they help produce an all-rounded individual, develop critical thinking and communication skills etc.

"But there is a distinction to be made between narrow and deep technical skills and how these may be broadened out across the industry. Good coders without degrees can struggle to progress into management, product development or project management roles. Employers still like to see a degree for management roles so MCs that stack into full degrees would help here."

3.3 PROVIDERS

There are a wide range of potential providers for microcredentials, including private companies and corporations, universities and colleges.

3.3.1 PRIVATE PROVIDERS

The number of microcredentials offered on selected learning platforms is continuing to rise. Coursera, the largest online provider, reported a 35% increase between 2020 and 2021. A large share of these microcredentials is developed by private providers, while the education market is being influenced by the rise of 'own-brand' learning platforms by large corporates whose main business is not education and training, such as Google, Amazon, Facebook and LinkedIn.

Technology companies have a long tradition of offering certified training for users and technicians of their own technologies, but many of these companies are now offering a wider range of training on topics beyond their own products, and in some cases developing their own training and certification ecosystem. In 2020, Google announced that it would remove the requirement for job applicants to have higher education degrees and launched a range of professional training qualifications that it would treat as equivalent to a degree in its recruitment processes for certain roles.

3.3.2 HIGHER EDUCATION PROVIDERS

Notwithstanding the rise of private provider in the education space, higher education institutions are currently the leading providers of microcredentials, with an increasing overlap between microcredentials offered on digital platforms and those provided directly by higher education institutions. It is observed that levels of interest in microcredentials by educational institutions are increasing but it is not clear what precisely is driving this. It has been suggested that this could be a 'fear of missing out' on the 'next big thing' rather than well-developed institutional strategies.²⁹ For some institutions microcredentials clearly fit with a defined social mission to provide lifelong learning. But competition from alternative providers, which threatens to disrupt traditional education, must be a decisive factor in this development. In the UK, government policy and the new Skills Act are important factors in the development of flexible, modular provision.

Early adopters of microcredentials in higher education are responding to ongoing concerns about the fit for purpose of traditional degrees and the perception that graduates are not sufficiently job ready, as well as the wider commercial opportunities which the need for continual upskilling in the future economy presents. Microcredentials offer higher education providers the opportunity to respond to learner needs and labour market demands, to modernise and unbundle the curriculum, with its expensive, campus-focused models and long-learning programmes.³⁰

This doesn't necessarily mean a huge shift to online learning. Despite the impetus which Covid-19 provided, survey evidence suggests there is a growing demand for blended and not purely online learning.³¹

3.3.3 FURTHER EDUCATION PROVIDERS

The role of further education in the design and delivery of microcredentials is relatively under-developed and under researched. Yet the sector could emerge as a key provider in this space. Further education colleges in the UK are already a large provider of higher education at levels 4 and 5, as well as informal education. They are delivering in partnership with higher education institutions (i.e through validation agreements) but there is also a growing number of FE colleges who have been granted Degree Awarding, or more typically Foundation Degree Awarding powers, that could feasibly occupy this space.

In the United States, technical colleges are currently the largest provider of non-degree credentials, which includes various micro-learning products. There is greater scope for involvement by further education, either in partnership with accrediting universities or in their own capacity, although the costs of developing new learning products are a barrier which would need to be overcome.

Future demand, from learners and employers, as well as further investment in the development of microcredentials will be dependent on how they are promoted and integrated within the mainstream education and skills system as well as tangible evidence of their benefits.

A focus on technological solutions and the supply of products by way of short online learning experiences is part of this. But the transformative potential of microcredentials is likely to come from better understanding the demand from learners and employers, and responding to this in a way that is useful. This may include the ability to scale and stack learning into credible outcomes, so that microcredentials become a valued feature of the UK's credential ecology.

Many short learning and continuing education programmes, particularly professional training programmes and those offered by business schools, provide important revenue streams for higher education institutions. Moreover, as higher education attainment continues to rise, this is a stream of revenue with substantial growth potential, since learners who already have higher education are the most likely to take advantage of further education and lifelong learning, and higher education institutions can also market short-learning programmes directly to their increasing alumni base.



4. BUILDING THE PATHWAYS TO HIGHER LEARNING

There is a growing divide in the UK between adults who continue to participate in education and training, and those who don't. There are multiple reasons for this. Balancing work commitments and family responsibilities to find time to study as well as having the financial resources and the ability to pay, especially among those with low income, are important factors. But the main distinction is between those who left school for higher education, and especially those that enter the professions, and those who did not.³² Education begets education.

Microcredentials can provide an effective way to reach all potential learners, while providing an agile response to industry needs, addressing employability and enabling the workforce to meet change. They can also offer flexible pathways to lifelong learning and higher education, providing a way for learners to achieve academic credit, and potentially, recognised qualifications, including traditional degrees. In this way these forms of credit-bearing credentials can achieve credible outcomes recognised by learners and businesses.

4.1 DESIGN AND ACCREDITATION

Microcredentials can be standalone experiences or a way in which learners can bundle up different units of learning to accrue credit. They could provide entry level to higher education modules or a bridge from foundation level to bachelor's degrees. Alternatively, they could build credit towards a full qualification.

Microcredentials should support a personalised, learner-led approach as far as possible and this should allow for the accumulation of disparate forms of learning. Microcredentials should not simply involve unbundling existing modules into smaller units and short courses. However, there is nothing, in theory, to prevent any higher education institution from designing their own microcredentials and the systems to allow these to be stacked into full qualifications, in line with their own processes and in accordance with recognised quality standards and qualification frameworks. Indeed, many universities in the UK have already established a microcredential offer.

Case study: Staffordshire University's microcredentials framework

Staffordshire University is pioneering microcredentials and has established a framework to develop a specific approach to building new courses from small units of learning.

Microcredentials are designed to enable access to higher education learning for everyone, regardless of prior learning (in most cases) and are distinct from the university's CPD offer. They provide opportunities to learn and build credit at different levels (4 to 7) across a range of subjects. Consideration for additional learning needs, caring responsibilities and access to IT equipment informs all course design. Contact hours include campus based and/or online study.

Students enrolled have 'associate status' and can study microcredentials without necessarily being registered for an award or for specific credit (for HESA purposes), although the framework can also incorporate students already registered for other awards (e.g. degrees).

The framework has been designed to facilitate a variety of approaches to building credit, where this is desired, and expands on existing modules that Staffordshire has already developed.

An example of curriculum design

Each microcredential represents five notional credits. This is a standalone unit that builds knowledge and skills in a specific subject discipline. On the completion, students will be issued with a certificate recognising their learning and the notional credit associated with that learning.

In order to provide evidence of learning towards a university credit-bearing module, students must undertake microcredentials with a combined notional value of at least 20 credits and complete an appropriate assessment of the learning. A final tutorial/supervision session supports the student to progress and apply for recognition of credit under the university's policy for building qualifications.

The achievement of a 20-credit module would be recognised as prior learning and enable a student to access an appropriate HE pathway.

At an undergraduate level, 'associate students' cannot take more than 60 credits overall in microcredentials. At a post-graduate level, associate students can study microcredentials to a number commensurate with a full postgraduate taught award (180 credits).

Delivery patterns

Each microcredential consists of 50 learning hours which includes a minimum of 10 hours scheduled teaching and learning with the balance designed as independent study or preparation. They can be delivered sequentially or blocked, for example four microcredentials over 20 weeks (with two hours per week scheduled teaching and learning) or four microcredentials (four hours per week) over 10 weeks, both with independent study periods between microcredentials.

Staffordshire University has outlined how it proposes to build credit through individually assessed blocks or modules of learning. Like traditional qualifications, the stacking potential of microcredentials will need to be more than the simple accumulation of credit. They may not require recognition of prior learning at entry level, but they will need clearly articulated modules and learning outcomes, and an overall coherent design. The way in which credit is applied will differ according to subject content and levels of difficulty. For example, a 20-credit module at level 6 will be more challenging within the expected learning time than a 20-credit module at level 4. In this context, the number of credits is not directly equivalent. There is currently a range of microcredentials available on FutureLearn, worth between 10 and 15 credits at undergraduate level, that do not stipulate what level (4-6) these credits equate to. As with Staffordshire University's model, microcredentials will need to identify both the level and volume of credit to map against recognised qualification frameworks if they are to be fitted together in a coherent way.

4.1.1 CREDIT TRANSFER

While providers are free to design and develop microcredentials according to their own processes, the development of this new market for learning will require some conformity to a common definition if they are to have a shared meaning and value among learners and employers. This is particularly the case where credit is conferred and potentially transferred between institutions. In theory, students in higher education can transfer between providers across the UK. In practice, this is more difficult because there is no standardised way of doing this. Different institutions validate their own qualifications and decide for themselves whether

they will accept the transfer of credit from others. Transferring a high volume of small units that don't easily conform to one another or map against qualification frameworks could be more complex.

Short of a universal clearing house for the transfer of micro-credit, the QAA has identified two possible approaches that would enable microcredentials to be built into a macro-credential.

- **Consortia:** A group of higher education providers that agree to recognise each other's microcredentials and enable a learner to move freely between them. Formal agreements would be required to determine how this would operate including which institution would ultimately make an award. There could be multiple benefits to this approach, especially at the regional level, where institutions could collaborate to minimise unnecessary duplication and competition, thereby serving the specific needs of local labour markets and priority sectors. Wrap-around support to promote available courses, develop directories and portals, and provide careers advice could also be shared and integrated with wider partners including local authorities, chambers of commerce and colleges.
- **Capstone course:** Not all microcredentials will need to be stacked into a coherent qualification. However, where this is desired, a final capstone course or module would allow a learner to accrue micro-credit from a wide programme of potentially random study subjects and draw the different elements together as an integrated whole. In some respects, this would not be dissimilar to a liberal arts degree, but would offer even more flexibility as there would be no requirement for a learner to follow a linear route in terms of progression through levels of study nor to remain at a single provider.

Another challenge to standard practices is the 'shelf-life' of academic credit. Policies will vary but, typically, the validity of academic credit is considered to be around five years. However, lifelong learning should mean that a degree could be built over a longer period time. It may be appropriate with microcredentials to set aside these regulations altogether. Where the learner makes the case for a coherent overall award with a capstone module, this could mitigate the period of time between the first and last microcredential. Alternatively, a full qualification gained via the accumulation of micro-credits could be branded to indicate its status, for example, a 'micro-diploma' or 'micro-degree'.

It is worth noting, however, that using the example of Staffordshire University's model, a full degree, comprised of 360 micro-credits, would take between 17 and 35 years of continuous study, assuming two to four learning hours per week. This scenario is unlikely but possible. What is more likely is that a series of two to four learning hours may lead to larger units of learning. Or that institutions will curate coherent sets of learning, which sit together, and provide advice and guidance to students about how these can be stacked, before taking more substantial short courses, which would build an award in a timelier fashion.

4.1.2 LIMITING THE REGULATORY AND ADMINISTRATIVE BURDEN

Higher education providers are responsible for meeting the requirements placed upon them by their relevant funding and regulatory bodies, all of whom have different requirements around different types of learning, funding and loans. This can drive both institutional and learner behaviour which could negate the benefits of bite-sized learning experiences and how they relate to one another in a permeable way. Microcredentials could support or contribute to full degrees, degree apprenticeships or higher technical qualifications, with the added complexity that credits cannot currently be moved between these different types of qualifications, other than using the accreditation of prior learning that some universities offer either using formal credits or experience. In these various scenarios, any number of organisations, such as the Office for Students, the Institute for Apprenticeships and Technical Education, the Gatsby Foundation, Ofsted, HESA and QAA, could have some oversight and responsibility.

The registration of an award above five credits requires a return to HESA of 200 data fields. If higher education providers are to support a step-on, step-off approach to lifelong learning, then administrative processes will need to be more flexible by making data requirements for students and learning outcomes proportionate to the learning experience. Metrics such as progression, continuation and employment outcomes are fairly meaningless in the context of a single microcredential.

There is a concern that the current institutional architecture could put off potential learners, who have to provide evidence (passports, utility bills etc.) for verification, while placing a burden on providers by increasing administrative costs for enrolling, registering, servicing and supporting high volumes of learners and smaller units of study with less associated revenue. This suggests the need for a standardised record system. Business models will need to reflect this, pushing up the price and requiring large numbers to make microcredentials financially viable.

4.2 FUNDING AND COSTS

Funding and the cost of microcredentials — to both the learner or employer who might pay for this, as well as the provider who must invest in their design and development — are potential barriers to the growth of this market.

4.2.1 THE LEARNER

The ability to pay, and access financial support, are important factors in participation. Most learners engaged in non-qualification training, including continuing professional development, are self-financing. A report for National Centre for Vocational Education Research in Australia identified that 93% of learners enrolled on training bundles are fee paying.³³ The OECD has identified that the average cost of tuition fees for

short courses can vary greatly by field of study,³⁴ and although there are many learning products currently available which are either free of charge, or more affordable than traditional qualifications, the tide of free learning is turning away from open access and widening participation to income generation.³⁵

The introduction of the Lifelong Loan Entitlement, in England, is a policy designed to address financial barriers. Under this new system, all adults will be provided with a loan entitlement to the equivalent of four years of post-18 education, to be used across levels 4-6 education. We know that those without higher qualifications are less likely to continue in learning and that adults with financial commitments are reluctant to take out loans for study. The loan entitlement is currently out to consultation, but if microcredentials are to play a role in the Government's desire to upskill the workforce and drive productivity, then these forms of accredited learning must be included and available to all adults regardless of previous attainment.

Making small amounts of learning available for a loan entitlement could encourage more adults to invest in their skills. It is therefore important that a de minimis limit on the value of a loan is not enforced. This would limit the flexibility of microcredentials to make bite-sized learning accessible and affordable for all. Not all microcredentials will need to stack into something bigger – or significant amounts of learning. A loan of £1,000 or less, with reasonable interest rates and repayment conditions, could be valuable to many people in work on low wages. The funding system needs to be designed so that it works for the type of learners who are not currently attracted to HE, as well as those who are. It should not be designed for the benefit of those who administer it. If the Lifelong Loan Entitlement is intended to remove barriers to learning, it should not impose a funding or credit bar.

Pricing microcredentials at a level that is affordable is important, particularly if they are to be stacked and funded using the loan entitlement. Fees should be proportionate to full qualifications and the amount of credit they bear, as far as this is practicable. A full bachelor's degree, of 360 credits, costs £27,750 for tuition fees in England. On this basis a microcredential carrying 10 credits would cost approximately £770. This is within the price range of many microcredentials currently on offer via FutureLearn.

Not all courses will cash out in this way, and there is likely to be variance according to subject disciplines. However, ensuring value for money and cost-equivalence across different institutions will be important to learners and providers. The Lifelong Loan Entitlement will need to be integrated with the existing student finance system to create a unified credit-based funding system that does not distinguish between different modes of study and provides equal access and support for learners regardless of how they learn – full or part-time – or where learning takes place.

COST BENEFITS

There is little evidence to inform learners about the likely return on their investment should they take out a loan for microcredentials. In the UK, FutureLearn provides information about an expected median-based salary and the number of vacancies available in industries related to many of its online courses. Studies of MOOCs indicate poor completion rates, typically between 3 and 6% on average³⁶ but in general, investment in education brings favourable economic outcomes. OECD data shows an average earning advantage of 19% for those with short-cycle tertiary education (equivalent to 240 credits) compared to those with upper secondary education. It is 43% for bachelor's graduates, and 89% for master's and doctoral holders.³⁷

There is some evidence that suggests stacking short-term credentials can improve labour market performance. A study in the United States estimated that individuals who obtained multiple credentials within the same field of study between 2000 and 2019 are four percentage points more likely to be employed and earn \$570 more in quarterly wages than those who only completed one credential during the same period.³⁸

The impact differs across fields of study – five percentage points in health employment compared to 10 percentage points in business. This study also found that those who first completed a short-term certificate have the highest and most consistent employment and wage returns to stacking, compared to those who first obtained a long-term certificate or associate degree as their first credential.

4.2.2 EMPLOYERS

Across the OECD there are a limited number of learners on non-degree learning programmes that benefit from employer support. In a survey of respondents who had completed Coursera and edX courses in 2018 and 2019, it was found that employers paid the fees for 4% of respondents and contributed towards the fees of another 1%.³⁹

Employees may receive support in terms of fee reimbursements or time off to study but those that do are more likely to be among the higher paid employees. According to another survey, managers and executives representing only 5% of the US workforce consume between 32% and 35% of training budgets.⁴⁰

On average, employers in the UK are investing less in staff training than their international competitors. The picture is not uniform and many large and medium-sized employers in the public and private sector have their own in-house training and development departments, although this is far from commonplace. Approximately 95% of businesses in the UK employ less than 10 employees, although these firms account for just 21% of all employment and 14% of turnover.

Finding the funds to invest in training is a key challenge for many employers. This problem has become aligned to an increasing dependency among businesses for the skills system, funded through public monies or personal loans, to provide job-ready candidates. Incentives are needed for employers to invest in this new flexible model of skills training, which employers say they want. Public funding to kick-start the design and development of microcredentials and to stimulate uptake until the benefits can be realised by employers is part of the answer. But other policy solutions could be made available, including reform of the apprenticeships levy and tax incentives.

Case study – Staffordshire-based employer

“The accusation that education and training is not providing ready-made employees is wrong-headed. I hear it all the time whenever I speak to employers. So is the idea that young people and those leaving education aren’t up to it. People have always said it.

“Employers need to do more. But we do need incentives to invest in training and drive the consumption of training. What is the kick-back? We need tax incentives; I’d be happy to invest half or all of my corporation tax bill on training. Any training because it’s all useful. I would use MCs to offer my staff degrees. Earn a degree over four, six, eight years while you work. I’d pay their loans as long as they committed to stay with the company for a number of years after they’ve completed. A ‘golden handcuffs’ arrangement.

“Unfortunately, the UK labour market has become addicted to mobile, instantly skilled labour, from anywhere. But this policy has actively de-skilled the workforce. The problem with HGV drivers is a classic case. The shift to agency models across many industries has meant that many workers are effectively freelance. More education and skills policy is not the answer to the skills problem in these sectors. HMRC need to enforce IR35 (off-payroll working rules) and make sure that workers have employed status and that all employers take responsibility for upskilling their workforce.”

4.2.3 PROVIDERS

There is little publicly available information on the costs of designing and developing microcredentials, however, figures based on MOOCs suggest that these should not be underestimated. A Times Higher Education study (2015) that looked at the real costs of developing MOOCs found that these varied from £10,000 to £50,000, with an average of £29,356.

Staffordshire University developed its pilot microcredentials with a contribution from the European Social Fund. This not only provides an element of de-risking but also subsidises employers and employees, making entry to the pilot courses free of charge. There is an argument for higher education providers to develop these products on a commercial basis, using their cash reserves, especially if the intention is to make a profit. However, where institutions are seeking to address significant skill deficits in difficult local labour markets which are experiencing signs of market failure, access to public funding should be considered as a means to levelling up, especially where funding would help to subsidise or discount the costs of training for businesses and learners.

The UK Government has announced three-year spending allocations for the Shared Prosperity Fund. This is a central pillar of the Government's Levelling Up agenda and a significant component of its support to address place-based inequalities, with the fund distributed among local authorities and combined authorities in the UK. This fund could be utilised to help higher education providers, in partnership with businesses, colleges and local government, develop microcredentials as a solution to local skill needs. Other sources of devolved skills funding (e.g. the Adult Education Budget) could also be considered.



6. CONCLUSIONS AND RECOMMENDATIONS

Microcredential is a relatively recent term for something that has been around for a long time. Put simply '*micro*' refers to a shorter form of training or education that is less than a full qualification, typically focused on a discreet skill or a set of skills and knowledge as opposed to a broad-based educational programme. 'Credential' is the proof of someone's abilities and experience.

There are currently a wide range of products which fall under this broad understanding of microcredentials, including accredited and unaccredited. This market is currently driven by 'private' investment. It will continue to evolve independent of public policy and new products will emerge. Higher and further education needs to be alive to this rapidly changing landscape and the potential threat which alternative forms of skills development can present to traditional training and qualifications.

There is evidence that some new forms of non-accredited learning, particularly those developed and endorsed by high-profile and powerful corporations, will be highly valued by employers and learners, and may in time displace traditional qualifications and routes into higher paid employment, such as degrees. If this transformation is to occur, it will most likely begin in specific industries and occupations linked to technology industries, although there is evidence of this broadening into other subject areas.

In responding to this challenge, there is an opportunity to develop new models and revenue streams. Microcredentials in higher education can be supplementary or complementary to traditional qualifications

but they could also be an alternative route to higher learning, particularly among those who would not otherwise be attracted. In this sense, they provide a vital interaction between academic qualifications and experiential learning, including work-based learning. Institutional reputation and the ability to offer academic credit, and potentially recognised qualifications, is a unique selling point which higher education providers have over other non-accredited products.

The recommendations here relate to those forms of micro-learning that might be designed and delivered by higher education providers, and where individual units may bear academic credit and potentially stack up into formally recognised qualifications.

STRENGTHENING THE EVIDENCE BASE

Much more needs to be known about microcredentials and their potential role in the UK's skills system.

1. Government (DfE) should undertake a mapping exercise of all micro-learning courses in the UK (including HE, FE and the private sector) to gather evidence and inform future policymaking and funding for this form of learning. Specifically, this should help to identify the types of microcredentials that might support a more stackable approach to accredited training and workforce development, and the tangible benefits that may accrue to learners and the UK economy.
2. Additionally, Government should consider a regional pilot to test ideas and approaches, including peer consortia (HE, FE, industry, local government) for the co-design, co-development, co-delivery and co-funding of microcredentials that can meet the needs of local labour markets and address the challenge of levelling up skills. A regional consortium could explore the opportunities for interoperability leading to a single portal or one-stop shop for microcredentials available to learners in the UK, as other nations including Australia, Canada and New Zealand have introduced.

PROMOTING AWARENESS

Future demand, from learners and employers, as well as further investment in the development of microcredentials, will be dependent on how they are promoted and integrated within the mainstream education and skills system.

3. As the leading voice of higher education institutions, Universities UK should promote national dialogue to:
 - Mature the current level of awareness, understanding and potential of microcredentials.
 - Align definitions, standards and frameworks between different nations in the UK.
 - Promote and disseminate collaborative approaches between providers and industry, including examples of shared digital credential platforms and credit transfer.

Similarly, the Association of Colleges, representing higher education provision in FE colleges, and the Collab Group, could undertake a parallel exercise in the further education sector.

4. Higher education providers will need to promote these forms of learning more widely with employers in local labour markets and seek to recruit harder-to-reach students, providing the necessary support to secure continued participation.
5. Adult careers advisors will also need to understand and communicate the benefits of micro-learning. In principle microcredentials should be learner led, but there is a need for good jargon-free information that enables learners to make choices.

REACHING A COMMON UNDERSTANDING

Higher education institutions in the UK need to move towards a common definition.

6. A microcredential, available in higher education, should:
 - Be fit for study as a standalone unit of learning, or as part of a bundle of units.
 - Carry academic credit or 'nominal credit', against a recognised level (4 to 7) of the Qualifications Frameworks, awarded by a recognised authority.
 - Conform to standard quality assurance mechanisms.

They should not:

- Specify an upper or lower limit of credit, this provides flexibility for institutions to innovate and vary their approach.
- Need to constitute an award in their own right but enable credit or 'nominal credit' to be stacked into a standalone award or traditional qualification as described in Qualification Frameworks.

MAKING LEARNING AFFORDABLE

Access to loan funding for learners and financial incentives for employers are needed to make micro-learning available and affordable.

7. Government should ensure that microcredentials, with a value of less than 30 credits, should qualify for funding via the Lifelong Loan Entitlement. A de minimis limit on the value of a loan should not be enforced. By definition microcredentials carrying academic credit, according to the Qualifications Framework, will be at level 4 and above. They should be recognised as a unique learning product in contradistinction to generic short courses.

8. In so far as it is practicable, units of accreditation for a microcredential should be costed at a price that is proportional to fees for an undergraduate degree (e.g. one unit of credit = 10 hours of learning = £770). Ideally fees should not exceed this cap.
9. Higher education providers should consider subscription-based funding models. This could allow learners to earn as many microcredentials as they are able to study for a fixed price. Subscription fees might be paid on a monthly or yearly basis.
10. Government should also consider incentives for employers to invest in this form of workforce training. This could include tax credits for businesses in the most economically challenged parts of the UK, and the incorporation of the apprenticeship levy into a new Skills Challenge Fund which would enable firms to buy shorter modules of training for staff.
11. Local government and Mayoral Combined Authorities should consider the potential of microcredentials to provide affordable solutions to local skill needs. Sources of devolved skills funding (e.g. the Shared Prosperity Fund and the Adult Education Budget) could be ringfenced to invest in the development of these new products.

EASING THE REGULATORY BURDEN

Higher education providers are responsible for meeting the requirements placed upon them by numerous funding and regulatory bodies. This could include the Office for Students, the Institute for Apprenticeships and Technical Education, the Gatsby Foundation, Ofsted, HESA and QAA.

12. Government and the many regulatory bodies with oversight and responsibility for higher education should consider a streamlined approach to regulation and data requirements of those taking microcredentials. The need for evidence, of benefits and outcomes, should be balanced against a need for a light touch regulation of short course provision.

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ENDNOTES

- 27 Fieldwork for the survey was conducted between 17th January and 4th February 2022
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Society

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In this report, the Lifelong Education Commission seeks to explore the emerging role of microcredentials in modular learning and how a common understanding can enable alternative pathways to higher level qualifications in the UK.

The UK Government's focus on modular, flexible, lifelong learning is designed to address the skills needed to drive higher levels of productivity. Microcredentials could be an important part of this approach, allowing employees and businesses to engage in bite sized learning that is targeted on specific industry needs. Their short, focused design could enable an agile response to current and future skills gaps. As jobs and the demand for skills continue to change, people will continually need to re-train, re-skill or redeploy to remain economically competitive.



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