

CHAPTER I

Introduction

When employers advertise a job at graduate level, they are likely to receive a mass of applications from freshly minted graduates with little to choose between them. How much better would it be if one of the candidates produced evidence that they already had the skills and knowledge required for the job? If they could demonstrate that they had studied with experts around the world, not only within universities but also in industry? If they had credentials that showed they could apply their knowledge, as well as essential workplace skills like teamwork, collaboration and creativity? This is the vision that has prompted the development of microcredentials: short, stackable courses – usually offered online – with an emphasis on the needs of the workplace.

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The vision has other elements. In the future, learners will be able to access courses whenever they need them. They will not be restricted to degree courses that run for multiple years with annual start dates. They will be able to return to study whenever they want to do so. They will be able to study alongside their work, refreshing and updating their skills. They will be able to access the qualifications that they need to get the jobs they want, retraining and upskilling whenever necessary.

These are exciting possibilities, but are they really feasible? In this book, we look at what is possible. We provide a background to microcredentials, identify what makes them distinctive, and then provide detailed guidance on how to go about producing them and supporting learners. In the process, we identify relevant pedagogies, suggest innovative and successful production processes, introduce ways of assessing and evaluating these courses, and discuss learner wellbeing. Finally, we look at visions of the future – how this field may develop nationally, internationally and within individual institutions.

Each chapter is rooted in experience, research and practice. Both authors work at The Open University (OU) in the UK, the country's biggest university, with extensive expertise in teaching at a distance. Our department, the Institute of Educational Technology (IET), has been producing and researching online courses for more than 25 years. Together, we led the academic development and evaluation of the OU's first microcredentials, working with teams from across the university to identify and solve the problems associated with setting up an extensive new qualification programme. By 2023, the OU's Microcredential Unit had developed 29 microcredentials and registered over 12,000 learners.

Alongside the practical work involved in producing and presenting microcredentials, we also produced annual evaluation

reports of the entire programme, investigating the extent to which these new qualifications were working for learners, educators and the institution as a whole (Chandler 2023; Papathoma & Ferguson 2020; Papathoma & Ferguson 2021). Other members of our department carry out research and scholarship on the subject, so we have access to the latest insights on subjects including learner benefits, assessment and stackability of micro-credentials (see, for example, Chandler & Perryman 2023; Iniesto et al. 2022; Rienties et al. 2023; Sargent et al. 2023). All this builds on previous work within IET related to the foundations of micro-credentials, including work on digital badging (Cross, Whitelock & Galley 2014), learning design (Nguyen, Rienties & Whitelock 2020), assessment and feedback (Whitelock 2018), massive open online courses (Ferguson et al. 2018) and open educational resources (Law 2019). Many of these insights are brought together in the courses that make up the OU's Masters in Online Teaching (MAOT) and, as authors of this book, we acknowledge our debt to the authors of those courses, particularly Dr Leigh-Anne Perryman.

What is a microcredential?

In 2021 the Organisation for Economic Co-operation and Development gathered definitions of the term 'microcredential' from around the world as part of its review of innovation in the area (Golden, Kato & Weko 2021). Elements included in these definitions varied. Of the eight quoted in the report, four referred to skills, two to competencies, one to knowledge and one to learning outcomes. Some focused on the work undertaken and some on the credit gained. All the definitions indicated that the course was short or small-scale. Overall, the report found that:

Most definitions of micro-credentials denote **an organised learning activity with an associated credential** – the credential recognises a skill or competency that has been acquired through an organised learning process and validated through an assessment. Consequently, the term ‘micro-credential’ is commonly understood to refer to both the credential itself and the education or training programme which leads to the credential award. (Golden, Kato & Weko 2021: 2)

The same report identified issues that limit the development of microcredentials, all of which relate to the lack of agreement about what these credentials are.

- There is a lack of common agreement about the definition of microcredentials.
- ‘Microcredentials’ is used as an umbrella term that describes a wide variety of programmes.
- It is not clear how microcredentials should be integrated with existing short courses.
- Study load, targeting of learning material and certification process all vary between providers.
- Microcredentials do not have an established relationship to other qualifications.
- Lack of standardised information on how and why microcredentials are used. (Golden, Kato & Weko 2021)

Developing a common definition for microcredentials (also written as micro credentials or micro-credentials) has proved to be a tricky problem. Within Europe, the MICROBOL project focused on ways of linking microcredentials to the vision of education set out in the Bologna key commitments (European Ministers of Education 1999). The basic definition agreed on by the project was short – ‘A micro-credential is a certified small volume of

learning’ (MICROBOL 2022) – but was set in the wider context of their use, constitutive elements and quality assurance processes.

In a parallel project, also funded by Europe’s Erasmus programme, the European MOOC Consortium developed the Common Microcredential Framework (Antonaci, Henderikx & Ubachs 2021), setting these qualifications firmly at higher education level and aligning them with both the European/National Qualification Framework (EQF/NQF) and the European Credit Transfer and Accumulation System (ECTS). This had several criteria:

- Workload of 100 to 150 hours (4–6 ECTS).
- Level 6 (bachelor) to 7 (master) of the EQF/NQF, with options for level 5.
- Assessment enabling the award of academic credit, either following successful completion of the course or recognition of prior learning.
- Reliable method of ID verification at the point of assessment.
- Transcript setting out the learning outcomes for a course, hours of study required, EQF level, and number of credit points earned. (Antonaci, Henderikx & Ubachs 2021)

However, this proved to be over-specific and not all microcredentials produced by consortium members met all the criteria. Some courses were much shorter, some were at different levels and others did not award academic credit.

In 2022 the European Union adopted a recommendation on a European approach to microcredentials for lifelong learning and employability:

‘Micro-credential’ means the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes will have been

assessed against transparent and clearly defined criteria. Learning experiences leading to micro-credentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural or labour market needs. Micro-credentials are owned by the learner, can be shared and are portable. They may be stand-alone or combined into larger credentials. They are underpinned by quality assurance following agreed standards in the relevant sector or area of activity. (General Secretariat of the Council 2022)

Although this appears definitive, it remains vague. How much learning is a ‘small volume’? At what level does that learning take place? In addition, this does not entirely align with other authoritative definitions. For example, the view in New Zealand is that:

Micro-credentials are units of learning designed to allow recognition of a discrete set of skills that meet specific learner, employer, industry, community, and iwi needs. NZQA-approved [New Zealand Qualifications Authority] micro-credentials:

- certify the achievement of a coherent set of skills and knowledge
- meet a specified need
- include an assessment component
- are no more than 40 credits
- can be at any level on the NZQCF [New Zealand Quality and Credentials Framework]. (NZQA 2023)

One of the problems with defining a microcredential is deciding which of its elements should take precedence and in which system these qualifications fit best. Some definitions focus on academic credit, assuming microcredentials to be a new form of higher education course offered by universities. Some focus on

the value of these credentials for employers, viewing them as a way of accrediting the training programmes offered by organisations such as Google and Cisco. Others draw attention to the potential of microcredentials to bridge the two approaches by enabling academic and industry credit to be evidenced using the same system. One reason for this tension is that microcredentials emerged at the same time as digital badges and for similar reasons. The development of the two is intertwined.

In her presidential address to the American Educational Research Association (AERA) in 2007, Eva Baker talked about the need to create a system of qualifications that would reflect the needs of the 21st century, a system that could be used not only to report test results but also to validate a range of accomplishments (Baker 2007). She suggested this might involve an approach similar to the award of merit badges.

Around a decade later, digital badges made this idea a reality. A digital badge is an online record of achievements that includes information about the achievement, the community that recognised that achievement and the work that was carried out to achieve it. These badges have two elements: an image file that represents the badge, and an electronic record of the award's criteria and validator (Hauck & MacKinnon 2016).

However, badges by themselves are not an effective credentialing system, in part because their status is not clear. A review of the literature on digital badges notes that, '[a]mong the limited number of studies with employers, hiring managers lacked a strong understanding of the DB [digital badge]' (Cumberland et al. 2023). Like merit badges, digital badges only make sense to someone who is familiar with the system in which they are awarded. It is possible to gain badges that represent accomplishment at playing the piano, sailing a small boat, reaching a particular standard

at gymnastics or collecting objects in an online game. However, each of these sets of badges exists within its own ecosystem and there is no centralised agreement about how to collect, compare, display or validate the badges from different ecosystems. They offer flexibility but little or no standardisation.

In 2011, the Mozilla Foundation, an American non-profit organisation, developed a technical standard called Open Badges, which could be used to issue, collect and display digital badges on multiple sites (Surman 2011). Using this open standard, which is now maintained by the IMS Global Learning Consortium, badges 'can represent skills and knowledge gained from open platforms and informal learning experiences, providing details about potential employees such as which specific verified skills the individual has mastered, when and how the skills were attained, and who issued the Badge' (Young, West & Nylin 2019).

Development of the open badge standard was followed by the launch of the Badge Alliance, which brought together more than 650 organisations from around the world (Surman 2011). The foundation also developed a digital 'backpack' that could be used to store and display badges. Other organisations developed similar backpacks and online platforms including Canvas, Desire2Learn and LinkedIn provided options for collecting and displaying badges.

In 2014, IBM piloted the use of digital badges on its online learning platform, Cognitive Class. The aim was to increase engagement and completion rates on its courses. Within weeks of the programme's start, enrolments increased by 129%, and enrolled learners who completed courses increased by 226%. Some of this rise can be attributed to increased emphasis on and publicity for the programme, but subsequent surveys showed that digital badge awards motivated employees and customers to

develop current skills, recognised employee achievement, helped to identify and acquire verified talent and led to an increase in sales (Leaser 2019). By 2019, the company had issued more than two million digital badges across 195 countries.

At the same time, universities and other educational institutions were experimenting with the use of digital badges. To give just one example, the OpenLearn website issued 38,000 digital badges in 2022 for completion of its badged open courses (Law & Roberts 2022). These badges, together with statements of participation, can be downloaded from the platform and shared on eportfolio platforms. They provide a way of evidencing engagement with a course without the formality of having to sit an exam. They have also been shown to have a positive impact on the learning journey to formal study (Law 2015).

Digital badges are usually awarded for relatively small pieces of work, such as attendance at a learning event or completion of a short course and so they are frequently referred to as micro-credentials. ‘Some scholars have used the terms DB, microcredential and open badge almost interchangeably’ (Cumberland et al. 2023). However, despite an initial tendency to conflate these terms, ‘microcredential’ is now more likely to be used in the sphere of formal education to describe quality-assured accreditation and courses lasting several weeks or months, while digital badges tend to be shorter and are more likely to be informal. In some cases, a digital badge is awarded at the end of a microcredential course.

Despite their overlap, digital badges and microcredentials were developed for different reasons. As opportunities for ‘informal learning’ (where learners are in control of both the process and goals of their learning) increased, demand grew for ways of recognising informal learning achievements. Digital badges provided a

way of meeting this need (Law 2015). Microcredentials, on the other hand, were a response to a skills gap between the supply of newly trained graduates and the demands of the job market. As new types of career and new ways of working emerged, employers searched for ways of training people so they would be able to demonstrate necessary skills and capabilities.

In England, the Shadbolt Review considered the employability of computer science graduates, and the Wakeham Review examined the skills requirements of lawyers and how accreditation systems might provide better support for graduates. In a report to Parliament, the Higher Education Funding Council for England summarised these two reports, noting that:

- ‘Employers are looking for “work-ready” graduates, who can apply their academic studies and abilities in a commercial or work context. Work experience is invaluable, but not all employers want the same things, or are willing (and sufficiently resourced) to mould and train staff;
- ‘Industry is changing at a rapid rate. This presents a dilemma for universities and colleges if they try to keep up with industry demands;
- ‘Graduates need to upskill and adapt to a changing jobs market. Their degree will only get them in so far in a career that may span 50 years.’ (House of Commons Science and Technology Committee 2016: 20)

Similar observations have been made worldwide. At the same time, ‘[a]s the digital divide between supply and demand widens and the war for scarce talent intensifies, many global employers do not have time to wait for graduates to complete traditional diplomas and bachelor degrees’ (Bowles et al. 2023: 427). This has

led to increasing pressure from governments on universities to produce shorter courses, tailored to the needs of industry.

Microcredentials are a way of meeting that challenge, and this book explains how that can be done.

Because microcredentials are a new type of qualification with their own distinctive characteristics, some approaches to teaching and learning are more appropriate than others. Both learners and educators need to acquire and develop new skills to make the most of this broad set of accredited courses. **Chapter 2** identifies the ways in which microcredentials differ from qualifications and other courses at higher education level and the implications of these differences for their production and presentation.

These new qualifications do not fit neatly into the existing systems set up for undergraduate, postgraduate and vocational courses. It takes a team to create and run a microcredential. Differences in scale, funding, learners and presentation are just some of the factors that mean microcredentials are not typical courses. Setting them up and sustaining them effectively requires thought and change in all areas of the institution, as well as new or extended partnerships with employers and professional organisations. **Chapter 3** examines the range of roles that contribute to a successful microcredential, including ways of reconceptualising the role of educator.

Chapter 4 looks at processes and frameworks that have been developed to help with the development of a microcredentials programme. These range from national guidelines to personal experiences, and each of them draws attention to aspects that should be taken into account, beginning with a consideration of the benefits of microcredentials for an educational institution and its learners. The chapter ends with a series of examples from

around the world, focusing on the decisions that were made and the processes followed in each case.

For most institutions, production of microcredentials is a new experience that requires a shift in production procedures. This may involve a shift from a single educator producing a course to a team experience of producing an online course. It may involve speeding up production methods to offer the most up-to-date thinking on fast-moving areas such as computer security or artificial intelligence. It may involve partnerships between higher education institutions and professional bodies. If the new microcredentials are to form a qualification, or part of a qualification, then there may be a need to produce multiple courses at speed. Whatever the situation, a shift to microcredentials can be a catalyst for rethinking both learning design and course production. **Chapter 5** outlines the changes implemented at our own institution, the UK's Open University, and methods we have found successful when making the move to microcredentials.

Traditionally, universities provide support and facilities for students in addition to opportunities for learning. Campus-based universities are homes for students, and even institutions that are distributed across sites will offer social and sporting activities as well as opportunities for eating, shopping and finance. Together, these facilities and societies can create a feeling of belonging, which ties students to their course or qualification and may later keep them engaged as alumni. Similarly, extended workplace training is also often accompanied by opportunities to work together, eat together and socialise together. Microcredentials break this pattern. They are relatively short and often studied online. Learners may never meet each other or their educators and, if the microcredential is offered on a generic platform, they may have only a hazy idea of which institution is responsible for

their study. Nevertheless, they are likely to encounter some of the same challenges to mental health and wellbeing as full-time students and are likely also to be facing competing demands on their time from family and workplace. **Chapter 6** focuses on wellbeing and mental health, considering the ways in which these affect microcredential learners, and how learners can be supported during their studies.

Assessment is both a defining characteristic of microcredentials and one of the greatest challenges to their success. These are not simply short courses; they are short courses that lead to a credential warranting the holder has certain skills, capacities or knowledge – typically those that employers are looking for. To be able to state authoritatively that this is the case, microcredential providers must assess learners against defined criteria. Doing this in a way that will be accepted as authoritative requires expensive infrastructure. An additional challenge is the expectation that learners will be able to ‘stack’ microcredentials from different providers to form qualifications. This implies some degree of alignment between those providers, which requires additional infrastructure as well as complex negotiations. **Chapter 7** begins by looking broadly at assessment and why it is used. It then considers different elements of assessment in the digital age, including its use with groups of students. It moves on to examine innovative practices and feedback, before turning to challenges and possible solutions.

Chapter 8 examines the definitions of ‘quality’ that become operationalised as a suite of standards in both national and international contexts. These standards are a necessary consideration for providers of accredited qualifications and so the chapter explores the question of whether they are sufficient kitemarks for stackable microcredential qualifications, together with their validation through the process known as ‘evaluation’.

Chapter 9 concludes the book by looking at what the future may hold for microcredentials. It begins by examining some of their current expected trajectories, looking at the different visions proposed by those developing them or influencing that development. It goes on to examine the different factors that will influence progress towards those visions, identifying some of the challenges that lie ahead. It ends by looking at recent developments in teaching and learning that could, in future, be incorporated within microcredentials.

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