

## CHAPTER 4

# Planning your first microcredentials

A variety of processes and frameworks 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.

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## Why microcredentials?

As previous chapters have made clear, the definition, role and scope of microcredentials are not yet fixed. Even in cases such as the European Union, where a definition has been developed and shared widely, it only applies in a limited number of countries and contexts. In addition, it is unlikely to be well known outside an educational setting. For example, although Colleges and Institutes Canada launched a national framework for microcredentials in 2021 (CICan 2021), research in the same year (Pichette et al. 2021) found that the majority of employers in the country were not aware of the term ‘microcredential’ and only 10% had a good understanding of the term.

A decision that has to be made early on is therefore what type(s) of microcredential will be developed, and what their purpose will be. ‘Understanding the strategic intent will help you describe the benefits to your stakeholders, particularly to key players such as the credential earners and the reviewers or consumers of the credentials (e.g., employers and other educational institutions)’ (Rossiter & Tynan 2019: 4). Different stakeholders have different needs.

The learner wants short, practical, and up-to-date courses for their chosen career path, education institutions emphasise accreditation for building trust, employers want clarity regarding the competencies gained through micro-credentials, and government bodies expect higher graduate employability with lower tuition fees. (Varadarajan, Koh & Daniel 2023: 1).

Strategic intent might be defined in terms of national expectations about the types of curriculum and qualification that will be offered, in terms of the aims and values of the institution, or in terms of the needs and wishes of learners. Oliver (2019: 30)

identifies seven types of microcredential that lead to certification, each with a different purpose.

- **Qualifying pathway:** providing a method of accessing a degree programme.
- **Granular certification of competencies within a degree:** providing data points within a degree programme.
- **Certification of experience:** mapping experience gained outside formal education against defined standards of achievement.
- **Certification of technical expertise:** providing evidence of expertise in a technical skill such as use of a specific software program.
- **Certification of complementary or additional expertise:** providing evidence of expertise that extends an individual's skillset.
- **Certification of skills update:** extending or updating an existing professional skillset.
- **Certification of personal development or personal attributes:** providing evidence of expertise in an area of personal development.

Pichette and her colleagues (2021: 8) present a different typology, which covers the mode of delivery, flexibility, student/instructor interaction, the form the credential takes (paper or digital), and the indicator of achievement. They identify four main types of microcredential: pathways to a formal qualification, updates for previous qualifications, an opportunity to gain technical skills, and an opportunity to develop transferable skills.

Both classification systems view microcredentials from the perspective of the HEI that offers them. Another approach is to work with regional government and major employers to identify

local needs for skills development. This allows microcredentials to be:

used as a dynamic response to local priorities and labour market needs – helping to streamline processes of up-skilling, while making progress more tangible. Individuals gain valuable micro-credentials that demonstrate their learning, while managers and organisations can better measure the impact of workforce development activity. (Hudak & Camilleri 2018: 21)

One example of employers playing a leading role in the development of microcredentials is the Department of Education in Tennessee, USA. In 2015, the department set targets to be achieved in the following five years. An issue at the time was that ‘most teachers across the state report that they are provided with inadequate resources for collaboration and professional improvement’ (Tennessee Department of Education 2015: 16). The department therefore planned for the development of more effective, personalised professional learning. Microcredentials formed part of that programme and, following a pilot, the department linked microcredentials to the state’s licensure advancement system, with the expectation that around a quarter of new teachers would use these courses alongside more traditional routes for career advancement (Berry, Airhart & Byrd 2016). By 2019, almost 800 educators from 25 school districts across the state were enrolled in the microcredential pilot. In addition, another nine US state education agencies were running official microcredential pilots, with five more states also experimenting with microcredentials (Berry & Byrd 2019).

### **Large-scale and national models**

These examples of educator training in the USA indicate an increasing need for microcredentials to be integrated within national

structures and frameworks. This is considered in more detail in Chapter 8, which deals with quality and evaluation. From the perspective of setting up a microcredentials programme, *The Microcredential Users' Guide*, produced by the MicroHE Consortium (Hudak & Camilleri 2018: 21–22), identifies five ways in which microcredentials can be incorporated within a wider recognition system. The focus of the guide is on higher education but the five approaches could, in principle, be used at any educational level.

1. **Microcredentials for credit transfer.** Institutions include specified microcredentials offered by other institutions as courses that can be taken for optional credits. This provides students with opportunities to gain international perspectives on a subject, or to access specialist knowledge that is not available within their home institution.
2. **Joint offers.** A consortium of institutions develops a portfolio of microcredentials that can be used to gain a larger qualification. All the courses within this portfolio are quality-assured by national agencies, and the resulting qualification is recognised by all institutions within the consortium as one that they have accredited.
3. **Clearinghouse model.** A single organisation, such as a MOOC platform, is used to host courses, build programmes and award microcredentials. This reduces the bureaucracy associated with the creation of agreements between institutions but, unless the chosen organisation is recognised as a high-quality provider of education or training, the programmes and microcredentials may be regarded by learners as low in status.
4. **National qualification frameworks.** If these frameworks are expanded to recognise microcredentials then these courses gain recognised status as well as a clear

relationship to other qualifications. This means they can be used both nationally and internationally for purposes of admission and progression. Work is already being carried out in several countries to include microcredentials within national frameworks.

5. **Recognition of non-formal learning.** Microcredentials from other institutions are not recognised by the institution where the student is enrolled. However, students can choose to have their learning on these courses assessed by their home institution. Although this superficially sounds straightforward, it creates a significant administrative and teaching burden for the home institution, which would need to provide, quality-assure and grade courses for individual learners.

### Microcredentials for learners

The perspectives on microcredential production introduced above begin with the requirements of large organisations and governments. However, the perspectives of learners are also crucial. For example, microcredential programmes have been shown to have a positive relationship with students' perceived employability (Zou et al. 2023). They also develop learners' knowledge and skills, change their thinking about the subject studied and may enable a career change or provide the confidence to go on to further study (Chandler & Perryman 2023). One way of considering learner views is to consider what a short, skills-focused, accredited course has to offer for students. Another is to take a pedagogic perspective and to consider how the affordances of this type of course can be used to support student learning.

Oliver (2021) suggests that the value to a learner of a micro-credential is equal to the benefits gained by that individual minus the costs incurred. She identifies four elements – motivation, education, circumstances and preferences – that are likely to influence learner perceptions of the value of a microcredential or, more broadly, of any credential. Motivations include seeking to credential existing or new skills, or an interest in gaining a credential either for personal interest or to enter or progress in a career. Educational considerations will include previous qualifications and life experience, the quality of past educational experiences, and the prerequisites for the credential. Circumstances relate to life and career stage, availability of resources to support study, ability to engage with the course, and any competing obligations, while preferences relate to course specifics such as mode of delivery, collaborative/individual approaches, or assessment type (Oliver 2021: Table 1).

Oliver's Micro-credential Learner Value Framework (2021: Table 2) provides a way of understanding the possible value of a microcredential for learners who are studying either for career advantage or for personal interest. The costs to learners relate to money and time. How much is the course and when is payment due? How much travel and effort will be required, and could this time and money be better spent in another way? Benefits cover a wider range of considerations, including:

- **Outcomes:** what knowledge and skills will be acquired, and what could these gain for the learner?
- **Certification:** what form does this take, is it widely recognised and verifiable?
- **Signalling power:** how are the platform and the provider regarded?

- **Interoperability:** does the course lead to other micro-credentials or qualifications?
- **Quality and standards:** is the course accredited, quality-assured and recognised by potential employers or other institutions?
- **Assessment and feedback:** how are these carried out, to what standard, who assesses work, and is formative feedback available?
- **Engagement:** are there opportunities for meaningful feedback with educators, peers or industry?
- **Convenience:** are there flexible alternatives for engagement either online or offline?

The Learner Value Framework takes into account the ways in which learners make decisions about which qualifications to register for and which courses to take in order to complete those qualifications successfully. Another, very different, way of thinking about the production of microcredentials from a learner perspective is to start with the pedagogy. This approach begins with an understanding of how and why learning takes place and identifies how microcredentials can be used to support those processes.

Authors based at Brigham Young University and the University of Memphis (West et al. 2020) took as a starting point the increasing need for learners to become proficient at problem-solving. This, in turn, requires proficiency in argumentation, question-generation and decision-making. West and his colleagues point to the benefits of inquiry-based instruction for developing these skills because it ‘emphasizes open investigations of authentic problem scenarios in a student-centered and collaborative learning classroom context’ (Ku et al. 2014: 253), as well as goal-directed behaviour, causal reasoning, decision-making, motivation and self-efficacy. They also identify significant issues



with implementing inquiry-based instruction: first, it is difficult to provide appropriate problems for novices with little domain knowledge and, second, ill-structured problems with no prescribed answer are difficult to assess.

West and his colleagues (2020) propose that microcredentials offer a way of addressing these issues. They argue that microlearning can motivate students to acquire both skills and domain knowledge, that micro courses offer students opportunities to build competence in areas where they are weak, and that because microcredentials are usually digital and therefore data rich, they:

contain a wide variety of information about what the learner accomplished, including rubrics and criteria for earning the credential and endorsements from people who observed them. These affordances can provide powerful support for assessment and feedback of the student. (West et al. 2020: 829)

In particular, West and his colleagues (2020) focus on the possibilities of open microcredentials – short courses that provide learners with the knowledge and skills to gain a digital badge. Although the distinctions between digital badges and microcredentials are becoming increasingly clear, a powerful argument for digital badges has always been that use of a single technical standard by many providers means the badges are portable and so learners can assemble ‘backpacks’ including evidence of their abilities that is validated by multiple organisations. As courses leading to digital badges are often very short, they can be used by learners to help them prepare for a more extensive problem-solving activity.

Overall, microcredentials can facilitate inquiry-based instruction by:

- (1) facilitating how learners gain prerequisite knowledge for problem solving,
- (2) establishing flexible criteria

for learning and accepting flexible forms of evidence of that learning, (3) utilizing learning pathways to provide pre-approved choices for self-directed learning, and (4) creating new opportunities for learning recognition, including empowering learners to describe and claim credit for their own learning. (West et al. 2020, 835)

As well as making a pedagogic case for microcredentials, West and his colleagues (2020) briefly describe their process of developing open microcredentials. This differs significantly from other approaches described in this chapter, because they allowed students to develop their own microcredentials if a suitable one was not already available. The process for doing this was supported and scaffolded (Randall, Farmer & West 2019) and students had access to existing open microcredentials, which provided examples of high-quality projects and assessments. Students developing open microcredentials had to research the skill to be developed, draft a list of criteria that would demonstrate the skill had been developed, and then provide evidence of meeting those criteria. Quality control was provided by educators, who had to give final approval for these credentials. When educational experts later reviewed the rubrics for open microcredentials, they found that those created by learners were stronger than those created by educators.

### **Experiences of developing microcredentials**

In most cases, though, microcredentials are produced by educators, usually working alongside other professionals. Before they begin work, the first step should be for an institution to decide to set up a microcredentials programme and to assemble a business case that underpins that decision. This is not as straightforward as it sounds. A survey of 105 post-secondary institutions in Canada

found that, although 83% of those taking the survey reported that leaders at their institution were encouraging the development of microcredentials, less than 40% had a framework or strategy to guide them (Pichette et al. 2021).

Five key questions need to be answered before an institution begins to develop microcredentials:

- How do you strategically position them?
- What type of institutional leadership is required?
- What type of internal structures are required?
- What type of business model(s) are required?
- What could possibly go wrong? (Brown, McGreal & Peters 2023)

Only once those questions have been answered should there be a shift from high-level strategic decision-making to the nuts and bolts of designing and producing a course.

The following five examples are based on published accounts of how different organisations and teams have worked through the process. The following chapter will examine in more detail how this planning is put into practice.

### *Example 1: Microcredentials for a university – Malaysia*

The Education Blueprint for Higher Education in Malaysia from 2015–2025 (Ministry of Education Malaysia 2015) did not explicitly mention microcredentials but it did set out principles that aligned well with them. These included calls for enhancements to technical and vocational education and training (TVET); intensified industry and community engagement; a framework for recognising prior learning; and enhancement of lifelong learning and online learning structures.

In this context, MARA Technological University (UiTM), the largest public university in the country, began work in 2019 to develop microcredentials and to initiate a distinctively Malaysian approach to these courses. Work began before the Malaysian government had produced full guidelines for good practices on microcredentials (MQA 2020). Although an initial guideline on micro-credentials was available at the time (MQA 2019), the advice within it was relatively limited.

Following an initial seminar to spark interest and create awareness, the university selected educators who had already been involved in the design of online courses and trained them to develop module materials and learning materials for micro-credentials. Ahmat and her colleagues investigated the challenges and opportunities of microcredentials and set out the linear process followed by the university to develop them (Ahmat et al. 2021: Fig. 1). This process began with discussion, listing of potential microcredentials, and collection of materials and information. Before micro-credentials went live, they went through six development stages:

1. analysis
2. development of an instructional design document
3. script development
4. prototype development
5. development of learning management system (LMS)
6. test-run.

Once modules had been implemented, feedback was gathered and used to make improvements. Evaluation showed that the programme's success depended on several factors, including multiple stakeholders, government support, guidelines from the

national qualifications agency, the marketing department, IT support, regular training, and systematic review processes (Ahmat et al. 2021).

### *Example 2: Microcredentials for a sector – USA*

Digital Promise is a US non-profit, created with a mission to accelerate innovation in education in order to improve opportunities to learn. The organisation sees the potential of microcredentials to provide educators with:

competency-based, on-demand, personalized, and shareable opportunities to demonstrate and be recognized for their professional learning. It's a sea change from oftentimes ineffective, traditional 'drive-by' professional development that educators experience all too commonly. (Brown 2019: 2)

By 2023, 10 US states had recognised microcredentials as a valid form of professional development for teachers to use to renew their certification (Digital Promise 2023). Since 2013, Digital Promise has been supporting this work through research, creating courses and stewarding a microcredentials ecosystem that includes hundreds of courses.

The process of developing a microcredential for this ecosystem begins when Digital Promise screens prospective issuers, looking at the ways in which their work is grounded in research. For example, the Global Financial Literacy Excellence Center developed courses that could fill the gaps in knowledge identified by its research, and the Center for Collaborative Education expanded access to its research-backed resources by running microcredentials (Brown 2019).

Before work begins on a microcredential, the issuing organisation is asked to respond to five key questions:

1. What competencies are important to educators?
2. Is the competency demonstrable?
3. What does the research suggest?
4. Once a competency has been isolated, how much evidence is the right amount of evidence, what evidence is appropriate, and how would an educator demonstrate the competency? What evidence would indicate a successful demonstration of competency?
5. What other related competencies would an educator demonstrate while they are demonstrating the selected competency? (Brady 2021)

Answering these questions thoughtfully enables an organisation to articulate a vision for microcredentials that is clear and of a high quality.

Issuers are then asked to draft microcredentials using the Digital Promise template. This covers:

- title
- competency
- key method
- method components
- supporting rationale and research
- resources
- submission guidelines and criteria
  - part 1: overview questions
  - part 2: work examples/artifacts/evidence and scoring guide
  - part 3: reflection (optional).

All research cited in the microcredentials is required to be relevant, current and openly accessible.

Digital Promise microcredentials also go through an extensive validation and evaluation process. This begins while a microcredential is being developed. Educators and experts are asked for feedback on questions and rubrics to check that questions are clear and aligned with the construct specified. When the course is running, the first 50 submissions are used as part of the validation process. Each is graded by two or more independent evaluators with an in-depth knowledge of the subject area. The grades for these 50 are then checked by a third evaluator for inter-rater reliability and the rubric is only validated if there is at least 80% agreement. If not, the rubric is investigated and clarified (Brown 2019).

### *Example 3: Microcredentials for a subject area – USA*

Brigham Young University in the USA needed training and credentials that could help pre-service and in-service teachers become competent in teaching coding and computational thinking to young learners. Hunsaker and West documented the process of developing a microcredential that could meet this need and published their work as a detailed design case in a 16-page paper that ‘outlines the project from analysis through design and development and on to pilot testing and evaluation’ (Hunsaker & West 2020: 8). They noted that the project emphasised the importance of interdisciplinary collaboration. When staff from different fields began to talk to each other, ‘deep and recurring collaboration among these groups strengthened the design immensely’ (Hunsaker & West 2020: 15).

Early conversations among key stakeholders identified the primary audience for the project – the groups who would become the microcredential learners – as well as goals and considerations. These included material to be covered, approaches to pedagogy, development of a learning pathway that would guide learners to appropriate material, and alignment with existing university practices.

Once priorities had been developed, the designer carried out a literature review, constructed a content model and carried out a needs assessment. The literature review placed the training within the broader context of computer science education, explored developmentally appropriate practices for teaching the subject to children aged four to 12, and identified the pedagogic and technical competencies teachers would require to teach these age groups. The content model used mind-mapping software to summarise content that would need to be presented to teachers studying the module, and would then have to be assessed. This model was checked and refined by subject-matter experts and was used to identify learning outcomes. Finally, a needs assessment was carried out using a survey and interviews to establish the content would be relevant to teachers and was not covered in other courses they were studying.

The next stage was to design the microcredential. This process began with the learning outcomes and project purpose. A project summary identified key elements to be developed: four open badges; tutorials preparing learners to complete the badge requirements successfully; tutorials and job aids to support the use of robots; different learning paths for early-childhood education (ECE) and elementary teachers; and a website providing public access to learning materials.

Design processes for each of these elements were different but the process used for the digital badges provides an indication



of what was involved. Building on what had been learned from the literature review and needs analysis, the team moved on to the first stage: conceptualisation. This involved identifying elements to be included in badges and tutorials, and then creating a template for both. The second stage, badge strategy, included deciding which badges would be created and the scope of each; making technical decisions; and considering a plan for maintenance. The third stage, drafting, not only produced initial versions of the badges and supporting material but also built in research-based learning strategies and produced images for the badges. The final stage, formative evaluation and revision, involved checking materials with a subject-matter expert, asking learners to review the materials, and making changes to improve learner experience.

The design process was followed by product implementation, when the materials were first used with the teachers who were to learn from them. This involved the course instructors but also the product designer, who met with the instructors pre-launch, participated in one lesson as a guest lecturer, and observed another class.

The final element of development was design evaluation, a summative process that addressed two questions: ‘Did learners become competent in the intended learning outcomes?’ and ‘How effective did learners perceive the intervention support materials to be?’ (Hunsaker & West 2020: 14). Data was collected about scores obtained on the badges, and data from a post-instruction survey was compared with that from a pre-instruction survey.

#### *Example 4: Microcredentials for a profession – Australia*

In Australia, as pressure to meet the various needs of diverse learners has increased, the need for teachers at all career stages to engage in further study has risen. In some states and territories,

teachers must now provide evidence that they have spent a set amount of time on professional learning in order to keep their registration current. There is an increasing need for professional learning opportunities that fit with teachers' schedules and that can support online communities of practice.

In this context, Queensland University of Technology (QUT) began to develop a suite of microcredentials that would provide comprehensive support for the professional development of teachers in Australia. This built on Oliver's work on microcredentials (2016; 2019) and created a set of learning pathways made up of courses at Australian Qualification Framework Level 8 (graduate certificate or diploma level) that led into existing post-graduate courses.

White (2021) carried out a descriptive case study of this process, investigating how these microcredentials were developed and which design frameworks were used. Phases of the work to which she drew attention included:

- interrogating ecosystem factors
- building a learning pathway framework
- creating learning design features
- building a local/global community of practice
- ensuring work-integrated learning and assessment.

The first stage, interrogating the ecosystem, involved the development of a clear vision of the nature of learning, taking into account previous work on tools used for online learning (for example, Conole & Alevizou 2010).

A range of ecosystem factors were considered, including building the learning pathway framework; creating the learning design features; enabling a local/global community of practice for teachers and ensuring

work-integrated assessment tied to ‘real world’ cases or scenarios. Data analytics helped lead to continuous improvement. (White 2021: 703)

The learning pathway framework was developed to give teachers flexibility in how much they engaged, as well as the ability to build towards an accredited award. The learning pathways could be followed in order to work towards a graduate certificate or a master of education qualification but there were also multiple exit points for teachers who were not seeking a full postgraduate qualification. A two-hour MOOC on the FutureLearn platform provided a free introduction; a 13-hour module studied on the university’s Blackboard platform came with a cost but also awarded a QUT certificate of completion; while a 62-hour module + assessment was more expensive and also awarded a QUT certificate of completion. Bundled together, the 75 study hours totalled six unit credits that could be put together to form a postgraduate qualification. Each course was open for an extended period of time, so that teachers had flexibility about when, and for how long, they engaged. Once this framework had been developed, it had to be endorsed by the accreditation and quality assurance departments of the university.

While the endorsement process was underway, academics, learning designers and technologists were working together to develop each of the features in the learning pathways. An active pedagogy was selected that would enable learners to do more than passively consume content. The aim was to instil both curiosity and creativity. There were also decisions to be made about the focus of each course, and these were made based on key areas of need for teachers, as well as expertise within the university. Overall, the learning design enabled teachers to go further with their learning by exploring different subject areas, or to go deeper by investigating a single area in more detail.

A benefit of the online design was that teachers on the learning pathways could contact others not just in their local area but also across Australia and internationally. This was a particular benefit for teachers working in rural, regional or otherwise remote areas. Several features were built into the modules to encourage peer learning and help build a community of practice. These ‘included games, quizzes, blogs, vlogs, discussion boards, Padlet polls and discussion spaces and the potential for teachers to share their own resources and lessons’ (White 2021: 706). Content experts and learning designers worked together to build courses that made full use of the potential of online study.

The module + assessment element of the learning pathway made it possible to earn academic credit for studying these courses. For that reason, they were not badged like the courses in Example 3 above but instead included more traditional summative assessment, marked by subject-matter experts. The award of academic credit meant that teachers could continue their learning pathway by enrolling for a full qualification.

*Example 5: Microcredentials to support  
students – Australia*

The microcredentials programme at the Royal Melbourne Institute of Technology (RMIT) was developed as a response to industry, government and university reports identifying the need for certification of skills gained through alternatives to traditional university study (Ponte & Saray 2019). The choice of microcredentials that make up the programme was influenced by Oliver’s work, including her observation that ‘[d]emand for higher cognitive skills (creativity, critical thinking, complex information processing) is predicted to increase’ (Oliver 2019: 1).

The university set up the RMIT Creds team, which collaborated with industry partners and key groups within the university to develop microcredentials that could be used to fill skills gaps. This collaboration included ideation workshops, which provided safe spaces to openly discuss and share ideas, as well as regular development meetings to ensure that content was both current and relevant.

An early initiative was a partnership with the university library to develop a series of microcredentials aligned with library resources. One of these was the information literacy credential, the foundation for a series of stackable microcredentials that enabled students to develop and evidence ‘skills in planning, writing, using data, understanding and identifying emerging technologies, repurposing and sharing digital content, creating digital artefacts and writing for digital environments’ (Ponte & Saray 2019: 547).

With the university committed to microcredentials, and the library/Creds team partnership in place, the process of developing the microcredential began with a concept brief. This was followed by a product proposal that fleshed out the original idea, identifying industry partners, target audience, skills to be developed, and learning outcomes that students would be supported to achieve. The structure of the microcredential was aligned with the JISC Digital Literacy Framework (see, for example, JISC 2022). Once complete, the proposal went to a central governing body of the university for approval.

Once approved, over an eight-week development period a learning designer drove discussion and creation of the microcredential. Library staff self-nominated to contribute to designing, writing, resourcing and referencing the course. The microcredential framework and structure were discussed at

weekly meetings, where tasks for the coming week were identified and allocated (Ponte & Saray 2019).

Since the microcredential was launched, it has been reviewed from a pedagogical and functional perspective every 12 to 18 months by the library, the Creds team and industry partners with the support of the learning designer. Assessments and rubrics are reviewed in relation to stated learning outcomes; design features and content are critiqued; analytics considered; and student feedback gathered. A competitor review has also been carried out, based on literature and websites, to investigate how other Australian universities are teaching information literacy (Ponte & Saray 2019).

Following the microcredential's first review, it was rewritten as a new microcredential. The new version updated around two thirds of the original course content and included a new set of learning outcomes. The pedagogy was changed to include more opportunities for authentic learning that students could apply in their other courses. The credits associated with the course were increased, and the focus was shifted away from information literacy within education and towards the application of information literacy within a professional setting. The course was also added to the university's learning management system, where it could be embedded into different academic programmes (Ponte & Saray 2019).

### **Learning from examples**

The five examples above identify structured processes that organisations and individuals have approached from different perspectives. Viewed together, there are five main stages represented in these accounts.

**Gathering support.** Although the published descriptions of some of the examples above begin after this stage, it is clear that there is preliminary work to be done in engaging and enthusing potential stakeholders. As noted in Chapter 3, relevant stakeholders are likely to include not only subject-matter experts and learning designers but also managers and those responsible for quality assurance, internal policy, certification, IT support, internal communications, student registration, student finance, and marketing.

**Discussion and collaboration.** In most cases, a great deal of work is done before work starts on an individual microcredential. This may include research and analysis, including reference to local and national guidelines and standards. Internal collaborations must be established as well as links, where appropriate, with external organisations such as employers and professional bodies. The team producing the microcredential needs to be clear who the potential learners are, what needs the microcredential could meet for those learners, what value it offers those learners, and which competencies they need to develop. Staff who have not worked on a microcredential before are likely to require training during this phase or the next.

**Design and development** includes both learning design and development of platform and resources. Learning outcomes and competencies must be aligned with content, activities, assessment and certification/digital badges. The pedagogic approach needs to take advantage of the affordances of online study (such as asynchronous study, global reach, experienced fellow learners, and time for reflection) and should take into account the needs and expectations of learners. Technical development may involve the construction of sites and discussion areas, providing links to external tools and resources, and making connections with existing systems such as registration and assessment.

**Implementation** is the phase all this work leads up to. Learners access the microcredential during this phase, and support staff in different departments across the university need to be aware of and prepared for the start of the course. Depending on the institution offering the microcredential, there may be calls on facilitators and mentors, assessment teams, wider student support, registration and finance teams, librarians, IT support and career advisers, as well as the staff who have worked on course development.

**Evaluation and improvement.** Although this phase is listed last here, the examples above make it clear that this process starts early with test runs, pilots and prototypes. Feedback can be gathered at any stage in the process, and a formal evaluation plan may also be in place. Crucially, this work needs to feed into improvements, looping back through the development cycle to ensure that evaluation outcomes and feedback are acted on.

## Conclusion

Microcredentials take many forms and are developed and studied for multiple reasons. There is no one-size-fits-all approach to planning and development. Nevertheless, work and research on them is now sufficiently advanced for some well-established patterns and frameworks to have been developed and documented so others can use them. The five examples summarised in this chapter each provide a model that can be used in other contexts. The next chapter takes an in-depth look at the process of microcredential design and production at The Open University, a large distance university in the UK, with long-term expertise in providing online education at undergraduate and postgraduate levels.



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