CHAPTER 5

Learning design and innovation in production

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 or individual lectures 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 (AI). It may involve partnerships between higher education institutions and professional bodies. If the new microcredentials are supposed to stack into a qualification, or into part of a qualification, then there may be a need to produce multiple courses at speed. Whatever the

How to cite this book chapter:
Ferguson, R. and Whitelock, D. 2024. Learning design and innovation in production. In: Ferguson, R. and Whitelock, D. *Microcredentials for Excellence: A Practical Guide*. Pp. 111–140. London: Ubiquity Press. DOI: https://doi.org/10.5334/bcz.e.

situation, a shift to microcredentials can be a catalyst for rethinking both learning design and course production. This chapter outlines the changes implemented at our own institution, the UK's Open University, and methods we found successful when making the move to microcredentials.

The Open University

The Open University (OU) is the largest university in the UK and one of the largest in Europe. It was founded as a distance-learning institution and, for more than half a century, has offered a wide range of modular undergraduate and postgraduate degrees. It has offered wholly online courses for more than 25 years and all its modules are now wholly or partly online. In addition to its degree courses, the OU offers more than a thousand short courses free of charge on its OpenLearn platform. The university was also responsible for the creation of the FutureLearn platform, where universities and professional bodies from around the world offer a wide range of courses at different levels. Overall, the university has a wealth of experience in offering online courses at degree level, short courses, and courses aligned with professional bodies. As a result, when FutureLearn launched its microcredential programme early in 2020, the OU was among the first to offer these courses.

By the summer of 2023, the OU had developed 29 microcredentials and registered over 12,000 learners on these courses. It had also explored innovative production methods to be able to produce these courses fast and effectively.

The university is used to producing large numbers of modules. Each year, it develops around 150 new courses and these join over 350 that are already on offer. The process of doing this has

developed over time and is a lengthy procedure involving market research, business case development, faculty checks, writing, filming, editing, rights checks and quality assurance. Throughout this time, teams from the internal Learning and Discovery Service (LDS) work closely with faculty members.

> The Learning Designer and Digital Development Editor roles are pivotal to the development and production of new modules and are involved right from the start, working alongside authors and faculty colleagues, to support and advise on plans. Other specialists, such as video and audio producers, interactive developers, and graphic developers, are brought in at various points in the development, as and when they are needed. (Leon & Du Baret 2022)

Innovation in production

Although this approach results in the development of high-quality courses that may be offered for several years with only minor modifications, it was not suitable for the more fast-paced demands of a microcredential programme. Under the lead of the university's head of transformation, Matthew Moran, the OU began to trial different production methods to reduce a development process, which had previously taken more than a year, to a lighter-touch method that in some cases required only six weeks to complete. As Papathoma and Ferguson (2021) note in an internal report, three approaches were trialled.

- **Six-week production.** This works well when the course is authored by skilled academics who have written other online/short courses and can draw on existing material, or when authors are available full-time throughout

the production period. Authors need to have a vision of the course, know its purpose, and have an idea of what the learning outcomes will be at the start of the production period.

- **12- to 18-week production.** This works well when academics are familiar with the platform on which the microcredential will be offered, and when sufficient time has been built into their schedules for microcredential production.
- **Editor/learning designer author content.** Academics share existing learning content with learning designers and editors, who work full-time to develop these materials into a course. Academic approval is required for the final content, tasks and assessment.

A major constraint is the amount of time available to work on a microcredential. Academics have multiple demands on their time in terms of teaching, research, management and administration. They are rarely able to set all other responsibilities aside at short notice to devote themselves to module development. Although some course shaping and rewriting can be handed to editors and learning designers, they are unlikely to have sufficient subject-matter expertise to write significant amounts of new material. Faculties therefore need to build in time for academics to concentrate on course production and to recognise how much time this takes.

Like academics, staff from LDS working on production are rarely able to concentrate on one course at a time. Editors, librarians, learning designers, project managers and video producers are typically all working on multiple projects. Matthew Moran dealt with this issue by creating a Microcredential Studio in which small teams of staff – including a project manager, a learning designer, a digital development editor and a media assistant

– concentrated all their efforts on specific microcredentials. The Microcredentials Studio developed approaches that differed from those used for the standard OU curriculum. These included:

- lightweight upfront planning;
- non-consecutive development by working on learning outcomes using a mapping document;
- working in collaboration with academics, using tools appropriate for each team;
- direct development on the platform, saving time and offering visibility of content;
- team members with cross-functional skills;
- sharing and building on existing knowledge;
- celebrating team successes;
- high levels of transparency. (Papathoma & Ferguson 2020)

An important innovation was the use of an agile approach to production. Previously, LDS had used the 'waterfall' method. This is a sequential approach to the completion of projects, used in many contexts, which works through stages one by one. In the case of course production, the stages might include designing, authoring, editing and reviewing the course, before adding it to a platform or virtual learning environment. This approach makes it relatively straightforward to schedule teams and individuals to work on different stages of multiple projects, but it is not well suited to speedy microcredential production.

Agile is a cyclic and collaborative approach originally designed for software production. The 12 principles behind it are set out in the Manifesto for Agile Software Development (Beck et al. 2021). These principles are phrased in terms of commercial software development but can be adapted to suit other situations. The approach emphasises the importance of frequent meetings

and face-to-face conversations, of trusting motivated individuals to get the job done, of keeping things simple, of regular reflection, short timescales, and paying attention to good design (Beck et al. 2021).

The Microcredentials Studio implemented a type of agile known as scrum – a widely used and lightweight process framework. The key elements (Mills 2014) are:

- **Small cross-functional teams.** These should include the product owner, who has the vision and decides on the order in which things should be done, and the scrum master, who facilitates communication and removes obstacles.
- **Storytelling.** Each new feature should be associated with a short story about the user and why the feature will add value for the user.
- **Effort points.** Compare the stories and give them points according to the amount of effort that will be involved in each one.
- **Feature prioritisation.** Each sprint should end with something that can be demonstrated, so chunks of work must be small enough to fit into a sprint.
- **Sprints.** A sprint should be one to four weeks long – enough time to deal with a set amount of effort points.
- **Scrums.** A 15-minute meeting every morning, standing up, so participants are not tempted to settle in. Three questions: what did you do yesterday to help finish this sprint? What will you do today to help finish this sprint? What obstacles does the team need to overcome?
- **Sprint reviews.** At the end of the sprint the team meets to discuss what has been achieved, and to improve working practices for the future.

This approach required minor amendments – the pandemic meant that in-person standing meetings were no longer practical, so they were replaced with frequent and short meetings using video-conferencing software. Otherwise, the method worked well. The scrums proved particularly useful in making sure that everyone knew what other team members were working on, and the team could work together to remove obstacles and reduce hold-ups.

Another element of agile that was adopted by the Microcredential Studio was kanban (from the Japanese word for signboard). This is essentially a way of visualising work and managing workflow that gives team members a view of both process and progress. A project is split into individual tasks and these are displayed on the kanban board. This can be done using sticky notes on a physical board, or by using an online application such as Trello if the team is working at a distance. Individual tasks are sorted into columns. These can be as simple as to do/in progress/complete or more complex. Each column can contain an agreed maximum number of tasks – if one is full the team needs to concentrate effort there until there is space again. This highlights any bottlenecks in workflow.

In the case of the Microcredentials Studio, the kanban board is divided into eight columns. On the left is an information column, for links and resources that will be used by the team throughout the project. Next to that is the 'Course backlog' – the tasks that will need to be completed in future but are not yet being worked on – and then the 'Sprint backlog', the tasks to be worked on in the current week. Once a task is picked up from the sprint backlog it will be moved first to the preparing and authoring column, next to the developing and editing column, on into the enhancing column and the approving/quality assurance column, before making

its final move into the 'Done!' column. Occasionally, if plans change, it will be moved to the very far right, in the 'Abandoned' column. As each task is picked up, the individual(s) working on it and the required completion date are added.

Using kanban, the current state of the workflow is clear to everyone. It is evident what has been finished, what is underway and what has yet to be started, as well as the tasks people are currently working on, and any bottlenecks that need to be addressed. Having the board visible during scrums can facilitate conversations and highlight problems that require discussion. The benefits of kanban include: 'efficiency, reduced email traffic and time spent in meetings, building sense of common purpose and shared understanding, and enhancing quality of outputs' (Moran 2017).

One of the reasons that agile approaches, including scrum and kanban, could be used successfully during production of microcredentials at the OU was the use of learning design to map out the different elements of the course before work began on writing it. Although learning design can be used in any context, it is perhaps most useful in online learning contexts where courses are developed by teams of specialists rather than individual educators.

Learning design

Educators have always made design decisions about how to structure the learning opportunities they create. What they have often lacked is a structured way of talking about, evaluating and sharing those decisions. This means that knowledge about what makes a great lesson, or a great course has sometimes been difficult to pass on. Learners may say a lesson was engaging, fun, fascinating or riveting – but it is not always clear what made it so, or whether

that same approach would work in a different subject area or with a different teacher. That is where learning design comes in.

Mor and Craft (2012) define learning design as 'the act of devising new practices, plans of activity, resources and tools aimed at achieving particular educational aims in a given situation'. The benefits of learning design became particularly apparent during the pandemic when educators and institutions – urgently needing to move from face-to-face to remote teaching – sought guidance from others more experienced in teaching online and at a distance. Learning design offers a way of sharing ideas in a format that allows for a methodical yet swift adaptation of lessons and courses for delivery in a variety of settings and contexts, to a variety of learners.

Origins of learning design

Between 2008 and 2012, the University of Reading participated in the Open University Learning Design Initiative (OULDI), which introduced teaching staff to strategies that enabled them to think critically about their design decisions and the process of design. A subsequent report on the project (Papaefthimiou 2012) revealed the enthusiasm with which learning design was received amongst the teaching staff:

> My view is that it's revolutionised our thinking … about learning and teaching ...The thing about the process is that it blows your mind, you know, almost like 'What can we do?' 'What would be interesting and different?' but once you've blown your mind, you've got to say 'Well, what can we actually manage here?' (Papaefthimiou 2012: 20, 31)

Since then, learning design methods like the ones used in the OULDI project have been developed and shared by educators in many countries. These methods:

- prompt educators to think about what they want learners to achieve while studying;
- help educators provide the context that will enable learners to achieve those outcomes;
- encourage educators to take into account the diversity of those learners;
- help to promote wider reflection and discussion among everyone involved in developing and producing courses, lessons and other learning opportunities.

In 2012, a group of educators met in Larnaca, Cyprus, to bring together ideas about learning design. This resulted in the Larnaca Declaration on Learning Design (Dalziel et al. 2016), which has influenced subsequent thinking in this area. The authors identified several reasons for developing and using learning design:

- to help educators become more effective in their preparation and facilitation of teaching and learning activities;
- to expose educators to new teaching ideas that take them beyond their traditional approaches;
- to help educators to describe effective teaching ideas so that they can be shared with, and adapted by, other educators;
- to share teaching ideas among educators in order to improve student learning;
- to make implicit, private teaching ideas into explicit, shared ideas;
- to provide a way of conveying an educational idea using a common framework;

- to share and develop good teaching practice;
- to support professional development to give teachers more time to work on other areas;
- to produce richer experiences for learners;
- to understand more about the nature of education.

Technology changes the contexts in which learning design takes place. For example, in online microcredentials, the structure of the educational experience is preserved. It is possible to look back at the course and see exactly what learners were asked to do, how the activities were structured and, in the case of discussions, how learners reacted. This would not necessarily be possible in a face-to-face teaching setting.

Learning design, when combined with technology, offers opportunities for educators to collaborate online to build lessons and courses together at a distance and to discuss how effective they are and how they could be improved. The Virtual University for Small States of the Commonwealth (VUSSC) is a notable example of this in practice. VUSSC is a network of 32 small-island developing states and African landlocked countries who collaborate in developing, adapting and sharing post-secondary level, openly licensed courses and learning materials in subjects relevant to the needs of people in the participating countries – including disaster management, the fishing industry and tourism (Perryman & Lesperance 2015).

Evaluation, which is a key component of the learning design process, can be easier for online courses than for face-to-face teaching and learning, due to teaching and learning activities being preserved after the course has ended. In addition, the data that are automatically generated and preserved by online systems can be used to evaluate how well things worked, where students engaged and where they did not.

The advantages of learning design, particularly in relation to online courses, mean that it is used throughout the OU when developing courses and modules. It proved to be particularly useful when developing microcredentials as it provided a framework to support the development of this new type of course. The main elements of that framework are scenarios, personas, learning outcomes and activities.

Designing microcredentials

Scenario-based design is a learner-focused approach which considers early in the design process who the learners are likely to be, how they will engage with the course, and what they may gain from it. In the case of microcredentials, it supports the shift to a new type of course and, potentially, a new type of learner. If previous courses have been designed for young people who are spending several years working towards a qualification, scenario-based design helps to identify things that will need to change when a course is developed for older learners, who may be working full-time and will only engage with the course for a few weeks or months.

Scenarios help to ground discussion around the development of microcredentials and provide a basis for talking to potential learners or even involving them in the design process. This is not always possible, but if learners on a microcredential are expected to come from a particular institution or organisation it can be very helpful to discuss goals, settings, objects, actions and events with them.

The approach highlights the importance of the following elements and related questions:

- **Actors:** who is the microcredential intended for? How diverse do you expect the learners to be? Which countries/sectors are likely to be represented?

- **Goals:** what are the goals of the microcredential? The goals of educators and learners may differ, so consider this question from both perspectives.
- **Settings:** identify one or two of the places where the learners studying the course or lesson are likely to be located. For example, learners may be studying while commuting, or during training time at work.
- **Objects:** which relevant tools and resources are learners likely to be able to access? For example, are they likely to have connectivity problems? Will they have ways of working together or sharing resources?
- **Actions:** what will learners be asked to do during the microcredential? Give a brief overview of the types of learning task they will be asked to engage with.
- **Events:** what is likely to happen while they are doing these activities? Can you foresee any potential problems?

Student personas

Scenario-based design involves thinking about the broad types of people who are likely to become learners on your microcredential. However, there is no average learner who can be slotted into any lesson. Developing personas provides a way of overcoming this problem and designing for unique people with specific characteristics, each of whom might face different barriers to learning.

Personas have been used in marketing and design for many years. More recently, they have become part of the learning design process in education, representing a fictitious person who could credibly be expected to study a particular course.

A typical persona contains basic information about the character (such as their name, age, gender, geographical location and

employment status) and information about them that can help the designer, such as their likes and dislikes, goals, experiences, abilities, preferences, needs, motivations and other things that may act as barriers or blockers for that character.

Personas have value both in planning new teaching and learning activities and resources and in checking whether existing resources and learning activities still meet learners' needs. Of course, many educators already have an informal idea of the students they are designing their learning for, especially if they have been teaching for a long time. However, the unwritten, informal nature of this practice can mean that educators end up designing for the majority of students, rather than the minority of students who would benefit from more inclusive learning design approaches. In addition, they may not adjust their thinking to consider the specific needs of microcredential learners.

Designing for 'outliers' – the students who are the most different from the 'typical' student body – can result in a more inclusive learning environment for everyone. However, it can be difficult for educators to maintain a clear sense of who these students are, and their needs, while designing. Using one or more personas helps to keep the learner perspective in mind. These personas provide a way of considering how learners will engage with the course, what they expect and what could cause problems. A persona can, therefore, be considered as a tool that helps the design process.

There are different methods of generating personas. Some are data-based, drawing on information that has been collected in a related context. Others create archetypes such as 'the student', 'the postgraduate' and 'the educator'. The OU uses a fiction-based perspective, creating personas based on what is already known about learners and adding this information to a student profile template (Open University 2020). The template includes sections

for background information: name, age, subjects being studied, first language and level of study. It also includes sections for:

- **Practical needs** – for example, those related to accessibility such as video and audio transcripts, captions, and alternative text for images.
- **Study motivations/career plans** – for example, career aspirations, expectations for the microcredential.
- **Previous educational experiences** – for example, highest level of previous study, any experience of studying part-time or online.
- **Study skills: strengths and weaknesses** – for example, motivation, setting goals, or paying attention to feedback.
- **Tuition likes and dislikes** – for example, in relation to collaborative tasks, reflection, synchronous/asynchronous discussion.
- **Expectations of the library** – for example, ability to access journals, e-books, databases, reference management software, or information skills training.
- **Living situation** – for example, personal circumstances, caring responsibilities, level of access to Internet and digital equipment.

Personas should be fictional characters rather than descriptions of real people. In part, this is for ethical reasons, but it also means that a set of personas can be developed that take into account important aspects of the population for which the course is being designed. For example, you might want at least one of your personas to be studying online for the first time, to be cynical about the idea of microcredentials, to be accessing the course from a different country, to be studying in their second or third language, or

to require a high grade to progress in their career. These aspects can be incorporated within personas, or a persona can be built around each of them. In all cases, it is important to avoid stereotypes, so personas should be reviewed before use to make sure they resemble real people rather than caricatures.

It is usual to create a range of personas with different backgrounds or different needs. This means that, as they go through the design process, learning designers and educators can consider how these personas would react to whatever it is they are designing. For example, the bullet-pointed reflections below were noted by an educator when commenting on draft instructions for an assignment on a course relating to technology-enhanced learning. While considering these, she related them to one of the personas developed for the course – 'Adam', who works in student support, likes to be given clear instructions and is new to working at postgraduate level.

- Simplifying this part of the instructions and adding a link to the detailed guidance might be helpful for Adam.
- Adam needs clear instructions for written work. Could we use headings in this section?
- Saying that references to module materials are likely to be included implies to Adam that they are not necessarily needed. Rephrasing as, e.g., 'should include' might encourage him to try harder to integrate and reference the ideas from the module.
- We have asked learners to make a connection with practice. As someone who works in student support and is not a teacher, Adam might be wondering what this should look like.

Another educator commented on the same set of assignment instructions from the perspective of 'Liz', a persona whose study time is limited as she is a single mother of three who also works full-time as a teaching assistant.

- Reflecting on this synchronous event is an important part of the assignment. School holidays affect Liz's study time and so, bearing in mind that this event falls within the school summer holidays, knowing both the date and time at this stage would help with her planning.
- Could these elements perhaps be displayed as indented bullet points? This would help Liz break the assessment down into different chunked tasks.
- Liz likes the guidance about word count for this part of the assignment – however, this guidance is not consistent throughout this section. Could we provide guidance in terms of length of pages or rough word count for each of the sections?

Once personas have been developed that give an idea of the learners who are likely to enrol for the microcredential, it is time to turn attention to what they are expected to gain by studying it.

Learning outcomes

Learning outcomes give learners an idea of what will be expected of them during a course or lesson, and the skills and knowledge they are likely to acquire during their studies. Individuals can also use them to make decisions about enrolling for a course, considering whether they have already achieved these outcomes and whether they are interested in achieving them.

Learning outcomes are typically expressed using short clear sentences in the future tense, explaining what learners will be able to do when they complete the course successfully. They should also be SMART:

- **S**pecific – what will show the outcome has been achieved?
- **M**easurable – what aspect of the outcome can be measured?
- **A**ttainable – is the outcome both realistic and challenging?
- **R**elevant – is the outcome aligned with learners' goals?
- **T**ime-bounded – how soon should the outcome be achieved?

Developing learning outcomes provides an opportunity to think about what learners will take away from a microcredential, and the best ways of supporting them to do this. Of course, any learning experience will have unintended outcomes, or may be used by learners in unexpected ways. Learning outcomes should not act as a constraint on learning, or a barrier to following up ideas. They represent, as a minimum, what a learner will take away from the microcredential if they complete it successfully.

Learning outcomes enable learners to select an appropriate course from the many that are on offer. They can be used to help persuade an employer to fund course registration or to strengthen a CV once a learner has completed the microcredential. From an educator's perspective, they help to keep a course consistent for each cohort, even if it is taught by many educators. They can be used to evaluate whether a course or lesson is effective. They can also be used as a basis for assessment and for the construction of learning activities.

Activity types

Learning design, in terms of choice of activity types, has been shown to influence the satisfaction and retention of students (Rienties & Toetenel 2016). In the case of online learning, the focus is most commonly on two types of activity: assimilating information and assessment. Learners either read some text or they watch a video. They then answer some questions. The emphasis is on the acquisition view of learning (Sfard 1993) that is associated with the view that knowledge is passed on by experts. This approach is typically content-centric, focused on the material that will be covered rather than on what learners will be able to do once they have engaged with that content. However, although assimilative activities are positively correlated with learner satisfaction, they are correlated negatively with academic performance (Rienties & Toetenel 2016).

To avoid over-reliance on assimilative activities, the OU uses a taxonomy for learning design that characterises six different types of learning task (Open University 2021).

- **assimilative:** attending to information – activities include reading, observing, reviewing, thinking about and considering;
- **communicative:** discussing with others – activities include discussing, reporting, collaborating, questioning and describing;
- **finding and handling information:** searching for and processing information – activities include classifying, analysing, searching, visualising and using;
- **productive:** actively constructing an artefact – activities include creating, building, designing, drawing, composing and remixing;

- **practice:** applying learning in a real-world or simulated setting – activities include practising, exploring, investigating, experimenting and improving;
- **assessment:** all forms of assessment.

An aspect of learning design is discussion about how different types of activity will be balanced within the microcredential. Every course will include some assimilative activity but learners are more likely to remember information if they have engaged with it actively rather than simply reading or viewing it. The emphasis of microcredentials on skills for the workplace increases the importance of other task types. For example, most professions require practitioners to engage confidently with communicative tasks such as discussing, presenting, collaborating and reporting, so various communicative tasks are important within a microcredential. Depending on the subject area of the microcredential, productive activities, practical activities or information-based activities may also be particularly relevant.

A credit-bearing microcredential will necessarily include assessment – the OU taxonomy emphasises that this forms part of the learning process. Although a microcredential may be too short for a tutor to mark and return assignments in time for learners to benefit from feedback, computer-marked assignments such as multiple-choice questions can be used as formative assessments. Rather than simply receiving a grade, learners can be automatically provided with feedback that explains why the answer they selected is right or wrong and, if necessary, they can be pointed back to the relevant section of the learning materials (see Chapter 7).

Course content, rights and workload

Although educators begin thinking about possible course content as soon as a microcredential is proposed, a course that is led

by content means that learning outcomes have to be shaped to suit that content, rather than learner needs. It can result in courses that are content-heavy, with learners spending most of their time watching and reading rather than engaging actively with the material and with each other. It may result in a course that is more aligned with educator preferences than with what learners and employers are looking for, and it can make it difficult for a team of authors to share their ideas.

Once the initial aspects of learning design are in place – scenario, personas, learning outcomes and activity types – educators are well placed to think about which content will be covered at which point. Depending on how microcredentials are structured at the institution, there may be constraints on the content that can be used, particularly in terms of access and rights issues. In a face-to-face situation, educators rarely consider copyright issues when presenting material. The situation on this varies from country to country because '[c]opyright is a territorial right, and different acts are permitted in different countries. You need to ensure that you comply with the laws of the countries in which you provide online resources' (Intellectual Property Office 2014). An online course should take into account the laws of the countries in which it is offered or its students are based. In most cases, online course materials – which will not simply be viewed in a lecture but downloaded and possibly printed and shared – should not be used without the permission of the rights holder.

The rights issue brings with it two main challenges. First, there is the cost. Depending on the source, even a small image used once to liven up a page can cost a large amount of money to reproduce. Second, locating rights holders and gaining permission to use material takes a considerable amount of time and is best done by a specialist. The OU has a rights team that works on

clearing material for use but it can take weeks or even months for copyright holders to respond to queries.

Another limitation on content is library access. On courses for full-time registered students this is straightforward – they have access to the institution's library, both in person and online. In most cases, microcredential learners will only have access to online resources. If they are not registered students with full access to facilities, then they will only be able to access the resources available to the public. This is a significant barrier because important texts are often located behind a paywall. Although the obvious solution might be to register all microcredential learners as students, this brings its own problems. For the price of a microcredential, is the institution willing to give individuals access to its full library, sporting and catering facilities, careers guidance and counselling service?

Open University microcredentials make use of open educational resources (OER) wherever possible.

> Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others. (UNESCO n.d.)

These resources, like this book, are released under Creative Commons licences, which specify how they can be used – whether users can distribute, remix, adapt and build upon them for commercial or non-commercial purposes. In most cases, using these resources will save both time and money. However, it is worth noting that resources are sometimes shared openly online by someone who is not the rights holder, so some checks are still necessary.

Once the course and activities are in place, it is helpful to check on the workload required of learners. With a face-to-face course it is often evident when students are overloaded, and the course can be adjusted if necessary. Online courses are less flexible. First, unless there are regular opportunities for interaction with learners, it may not be clear when they are overloaded and struggling to keep up with the course. If learners do not have a social space where they feel confident about sharing problems, individuals may feel that they are the only ones struggling to keep up, interpreting this as a personal failure rather than as a sign the course needs to be adjusted. Even if an issue with workload is identified, it can be difficult to correct. Changing a course in progress is problematic because some learners may already have completed the tasks that are to be removed or adjusted. Changing a subsequent run of the course creates quality assurance issues, because learners receive the same certificate for different amounts of work. The best solution is to avoid these problems by checking the workload before the course opens.

The amount of study hours involved in a microcredential varies by institution and the way of expressing or calculating that time varies by country. In England, an honours degree requires 360 credits, and one credit is expected to take 10 hours of study time (QAA 2013).

> The term 'notional learning time' is used to denote all time expected to be spent by a student in pursuit of a higher education qualification. This includes independent study and reading, preparation for contact hours, coursework, revision and summative assessment. (QAA 2013: 7)

OU undergraduate microcredentials are worth 10 credits, so require 100 notional study hours, and postgraduate microcredentials

are worth 15 credits and require 150 notional study hours. On a 10-week undergraduate OU microcredential, learners can expect to spend around 10 hours a week studying, and on a 12-week postgraduate OU microcredential they will spend 12–13 hours a week on their study.

An evaluation of student workload (Open University 2015a) suggested that, according to the level of study, module-directed study should take from 45% to 60% of that time, with the other time set aside for independent study, preparation and revision. The situation is slightly different on microcredentials, because students are developing a more specific set of skills, but 10 hours a week at undergraduate level and 13 hours a week at postgraduate levels remain maximums for a course that is to be studied part-time.

The average reading speed of a literate adult is usually estimated at somewhere around 200 words per minute (wpm). However, reading course content takes longer because most learners will read and re-read a text, perhaps returning to earlier sections, and usually highlighting text or taking notes. The OU's student evaluation project recommended assuming a reading speed of 120 wpm for easy text, 70 wpm for medium text, and 35 wpm for difficult text. For ease of calculation and to avoid arguments about the relative difficulty of text, this is usually interpreted as 40 wpm over an entire course. So, for example, reading an 8,000-word academic paper would be assumed to take a learner more than three hours, while reading a 2,000-word section of a report would take around 50 minutes. Expert educators, who are familiar with the ideas and arguments, could skim read much faster than that, but these times are based on learners who are encountering complex ideas for the first time.

Estimating the time learners will spend watching videos or listening to audio appears straightforward, as these recordings are all accompanied by information about how long they will last. However, learners replay sections, pause to take notes or take a break to reflect on content. The OU allows three times their running time for short videos and 1.5 times their running time for longer clips. Audio clips are assumed to require twice their running time (Open University 2015b). Whichever timings are selected, using a shared spreadsheet template to calculate total activity lengths can help with course writing, especially when multiple authors are involved.

Innovation in learning design: the writers' room

The learning design process that has been developed and refined at the OU over the past 15 years works well when developing online courses. As was the case with production, the shift to microcredentials provided an opportunity to trial different approaches. In this case, Matthew Moran, the OU's transformation lead, adapted a method that has been used with great success in the creative arts – the writers' room.

In the film and TV industries, a writers' room is exactly what the title suggests, a place for a group of writers to come together to work on a script or screenplay. The original *Star Wars* script was created in a writers' room, as is *The Simpsons*.

Typically, this is a place for brainstorming ideas and creating an outline. In some cases, it is also used for fleshing out ideas into a full script. The aim is to bring people together who love what they are doing and who are excited about the project. When this approach works well, writers complement each other, bringing different skills to their joint creation.

The process has similarities with learning design, in that the entire project is mapped out before the content is added. Writers explore existing material, come up with story ideas, break those down into acts and scenes, and then share these with the producer. The producer selects one of them and takes it to the network for funding or approval.

Within the room the head (also known as the showrunner) models the process, manages time and makes decisions. A notetaker records suggestions about setting, storyline and characters, as well as recording what has been agreed. Writers discuss and agree elements of the script including characters, storylines, settings, themes and tone. They will also map the storyline out in terms of 'beats', the smallest unit of dramatic action, each one representing a large or small shift in the narrative. Together these beats establish the structure and pacing of the script as a whole.

Transferred into an educational setting, the writers' room can provide an exciting and creative collaborative space in which the people responsible for writing a microcredential can work together to map out its story structure. Instead of considering the course as a set of content on a subject, or as a path towards learning outcomes, working in this way frames it as an unfolding story that learners will want to follow to the end.

Viewed as a storyline, a microcredential can take on a three-act structure: context, journey and resolution.

Context: This begins with a situation or a problem that engages the learner – the issue that motivates the course. For example: 'We need to find a solution to the climate crisis' or 'We need better ways of supporting student wellbeing' or 'Companies are facing an increasing number of cyber attacks'. These are broad issues, so the next step is to identify a complication that the microcredential can address – 'We need to identify steps that will take us

towards net zero' or 'Student mental health is noticeably worse since the pandemic' or 'Phishing attacks are increasing'. A final aspect of the context is to identify a question worth asking that the course will address – 'Is there a method of reducing carbon emissions that has been shown to work?' or 'What are the best ways of supporting the mental health of our learners?' or 'How can different parts of our organisation act to reduce the risks posed by phishing?'

Journey: Over the next 10 weeks, the course answers that question by – 'taking you through the approach that has been used successfully in Cuba (or another country or organisation)' or 'sharing the ways that learners and educators in these three very different universities have achieved this' or 'introducing a 10-step framework that has worked for these organisations'.

Resolution: Bringing together academic and practical knowledge to answer the question.

Context, journey and resolution may be completely different to the examples given here, but in each case learners are presented with a problem that engages or motivates them, they are taken on a journey that addresses that problem, and the course provides them with a resolution. As with any storyline, it is important that people are emotionally engaged. Writers can brainstorm what they want learners to experience, feel and connect with at different points in the course, mapping out an emotional journey with high points and low points, conflict and resolution.

The writers' room is a flexible form that provides a new way of approaching learning design. Microcredential teams who have tried it at the OU have given positive feedback – they like the way it offers new possibilities, centres the learner, introduces new ideas, provides a way of solving problems, speeds up the writing process, and brings the team together to have fun.

Conclusion

Ways of designing, writing and producing a microcredential will vary between institutions, depending on decisions that have been made about the length, status and purpose of these courses. The approaches described in this chapter have all been implemented successfully at the OU. Some of them have been used for many years in the development of online courses. In other cases, the introduction of microcredentials has provided an opportunity to experiment, and to introduce modified versions of techniques that have been found to work successfully in other sectors. A shift towards microcredentials opens up possibilities for change and opportunities for reinvigorating design and production processes across the institution. The next chapter expands on these possibilities by introducing ways in which mental health and wellbeing can be built into the microcredential curriculum.

References

Beck, K., Beedle, M., van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A., Jeffries, R., Kern, J., Marick, B., Martin, R. C., Mellor, S., Schwaber, K., Sutherland, J. and Thomas., D. (2021). *Manifesto for agile software development*. Available at https://agilemanifesto.org

Dalziel, J., Conole, G., Wills, S., Walker, S., Bennett, S., Dobozy, E., Cameron, L., Badilescu-Buga, E. and Bower, M. (2016). The Larnaca declaration on learning design. *Journal of Interactive Media in Education*, 1: 7. DOI: http://doi.org/10.5334/jime.407

Intellectual Property Office. (2014). *Exceptions to copyright: Education and teaching*. Newport: IPO. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/375951/Education_and_Teaching.pdf

Leon, A. and Du Baret, C. (2022). Working together in module design. *Learning Design Team Blog*, 19 April 2022. Available at http://www.open.ac.uk/blogs/learning-design/?p=1337

Mills, J. (2014). How to scrum manage. *Wired*, January 2015. Available at https://www.wired.co.uk/article/scrum-manage

Mor, Y. and Craft, B. (2012). Learning design: Reflections upon the current landscape. *Research in Learning Technology*, 20. Available at https://journal.alt.ac.uk/index.php/rlt/article/view/1364

Moran, M. (2017). *H889 Kanban*. Email message, 4 September 2017.

Open University. (2021). *OU learning design activity types framework*. Available at https://www.open.ac.uk/blogs/learning-design/wp-content/uploads/2021/10/OU-LD-Activity-Types-Framework-October-2021-FINAL.pdf

Open University. (2020). *Student profile form*. Available at https://www.open.ac.uk/blogs/learning-design/wp-content/uploads/2020/07/Student-Profile-form-v2-updated-June-2018.pdf

Open University. (2015a). *Student workload evaluation project*. Milton Keynes: The Open University.

Open University. (2015b). *Student workload evaluation project, phase 2, stage 2 findings and recommendations*. Milton Keynes: The Open University.

Papaefthimiou, M.-C. (2012). Learning design initiative at the University of Reading: Pedagogy and technological choices; Reading pilot final report. Available at http://www.open.ac.uk/blogs/archiveOULDI/wp-content/uploads/2010/12/OULDI_Reading_FINAL.pdf

Papathoma, T. and Ferguson, R. (2020). *Evaluation of Open University microcredentials: Final report of phase one*. Milton Keynes: The Open University.

Papathoma, T. and Ferguson, R. (2021). *Evaluation of Open University microcredentials: Final report of phase two*. Milton Keynes: The Open University.

Perryman, L.-A. and Lesperance, J. (2015). Collaborating across borders: OER use and open educational practices within the Virtual University for Small States of the Commonwealth.

Paper presented at the Open Education Global Conference 2015, Banff, Canada, 22–24 April 2015.

QAA. (2013). *Explaining student workload: Guidance about providing information for students*. Gloucester: Quality Assurance Agency.

Rienties, B. and Toetenel, L. (2016). The impact of learning design on student behaviour, satisfaction and performance: A cross-institutional comparison across 151 modules. *Computers in Human Behavior*, 60: 333–341. DOI: https://doi.org/10.1016/j.chb.2016.02.074

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(2): 4–13.

UNESCO. (n.d.). *Open educational resources*. Available at https://www.unesco.org/en/open-educational-resources