This is an extract from
A Connected Curriculum for Higher Education by Dilly Fung

Published by:

UCLPRESS

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Connected programme design

1 Introduction

The second dimension of the Connected Curriculum framework, 'A throughline of research activity is built into each programme', has three related strands, each of which depends on coherent programme design:

- creating a related sequence of opportunities for research and enquiry, so that students steadily build up their abilities and confidence;
- prompting students to make conceptual connections between apparently disparate elements of their wider programme;
- enabling students to develop a clear picture, or narrative, of their overall learning journey and to analyse their personal progress and future goals.

The contention is that a well designed mandatory sequence of core activities, for all students studying on a particular programme (that is, studying for the same academic award), can achieve all three of these challenges simultaneously, such that they reinforce each other. In this chapter we consider different ways in which this might be achieved and then look more closely at why 'joined up' programme design is important for students. We conclude with four vignettes of current practice.

2 Practical approaches to creating a connected 'throughline' of enquiry

Ensuring that programmes of study are designed coherently can be a challenge, especially for institutions that use modularised systems in

which students studying for the same degree can make very different study choices from those of their peers on the same programme. Some programmes build in a very high degree of student choice, while others are made up predominantly of compulsory topics of study. Even in the latter, it is not always straightforward to build students' skills in research and enquiry incrementally through the length of the programme, or to enable students to see how the different areas of knowledge and skills covered by the programme relate to one another. Neither is it easy for students to gain a clear overview of their own knowledge, skills and values as these develop during their period of study.

Building a core sequence of enquiry-based learning opportunities has great promise. It can even lead to a programme-wide Showcase Portfolio, allowing students to collate and curate their best work for assessment. But what might all this look like in practice? The following ten approaches are neither exhaustive nor mutually exclusive but illustrate possibilities from which programme leaders and teams can select, or which may stimulate other effective ideas.

1. **Creating a sequence of mandatory modules**, which clearly follow on through each year (or phase) of study and which explicitly challenge students to build their own connected learning narrative. This may be achieved, for example, by:
   - foregrounding the principles and practices of active research and enquiry in the core modules (this should be a principle for any fully 'connected curriculum', as the key is empowering students to undertake research and enquiry increasingly through their programme);
   - building on a core conceptual theme, such as ethical practice, global citizenship or sustainability, which acts as a vehicle for enabling students to make connections between the broader spectrum of topics that make up the whole programme;
   - foregrounding the core principles of practice in the discipline, e.g. 'Becoming a historian', 'Becoming a physicist', or 'Professionalism in Architecture'.

2. **Creating a series of 'Connections' modules**, which act like the mandatory, connective modules above but allow for some student choice. For example, in year one there could be two Connections modules and students choose only one. Both modules would require links across different ideas/topics to be made but each would

orientate around different knowledge content. Ideally there should be new subject content for the students in these modules; the new material can then act as a springboard for challenging students to connect the new insights with other themes covered on the programme.

3. **Creating a single linear module that stretches from the beginning to the end** of the programme, running alongside other optional modules. Such a module would include a sequence of assessment points that collectively anchor core learning and the development of skills needed for research and enquiry. This can be a challenge for regulations orientated around formally completing credits at each level but these may be overcome by setting assessment points that need simply to be completed at each stage but which can be revisited, improved and formally assessed later. One possibility for such a degree-long module is to design it fluidly, so that students must undertake tasks but are working towards a Showcase Portfolio in which they select their best 'outputs' for final, summative submission. They can be asked to include in the portfolio, where useful, analytical reflections on their own learning: their own learning story. The Showcase Portfolio (see Chapter 7) has the advantage of enabling students to take risks without penalty; if they have tried something but not fully succeeded, they can explain in the final portfolio what they learned from that experience.

4. **Building timetabled peer study groups into the full length of the degree.** In these groups, students are challenged to work together to make, work on and report on conceptual or professional themes to the wider cohort. They may do this, for example, via an online discussion forum, blog or co-created wiki. These activities can feed into formative or, preferably, summative assessments; if students receive marks, they may be more motivated to engage. Decisions need to be made about where group marks should count and where individual marks should be taken into consideration; a balance of the two is often preferable. Students' abilities to articulate conceptual and professional connections across apparently disparate topics can be rewarded highly, and emphasised in the assessment criteria.

5. **Orientating the whole degree programme towards a real-world event**, such as an undergraduate or postgraduate research

conference. The theme of research and enquiry can be flagged as central to the shape of the degree, and the whole programme shaped so that it culminates in an undergraduate conference. Planning such a conference can involve a whole suite of challenges, including working with alumni and/or employers to shape the event, as well as speaking at and critiquing one another during the conference itself.

6. **Designing a 'capstone' module** for the final year/learning phase (e.g. in the last term or semester) in which students are explicitly challenged to draw on and apply learning from across all dimensions of their studies to a complex, multi-faceted task, problem or challenge.

7. **Creating a single core assessment** – for example, a reflectively analytical portfolio – that builds from phase to phase. This may be built into a sequence of connective modules (1 and 2), assessed alongside a capstone module (6) or overseen in academic tutorials (10). Formative feedback from assessors along the way helps to shape students' development and improve the work as they progress.

8. **Using a programme of online learning** which runs in parallel with face-to-face elements, but which provides structured opportunities for students to make connections between the full spectrum of topics. Online tutorial support and/or peer engagement add value here.

9. **Ensuring that connective themes are regularly revisited as a repeated motif in the content and student assessments.** This can be a means of enhancing a programme in which modules (or subunits) are entirely or predominantly mandatory, a common situation for programmes accredited by external professional bodies. In this case, there may still be opportunities to build in some of the other features listed here, if suitable for the context.

10. **Underpinning the programme with an academic tutorial system**, in which students work in small groups with the support of a tutor to connect and interrogate aspects of their learning. Tutors can meet with tutor groups and use guided conversations, for example, to encourage students to reflect on their overall understandings of the discipline, the various ways in which investigations are carried out within it, and the extent to which students feel confident that they are developing the skills needed to succeed on their programme of study.

3 Undergraduate and postgraduate programmes: similarities and differences

The above features of curriculum design are just indicative of many possibilities. Choices made are likely to be affected by what have been described as the 'signature pedagogies' (Shulman 2005) of the given discipline. Decisions about curriculum design will also depend on the length and level of the degree programme; these differ most obviously between undergraduate and postgraduate awards.

For undergraduate programmes, which may be from three to six years in duration, there are various creative possibilities in terms of the use of mandatory and optional modules, and how to map content, learning activities and assessments not only across a given year of study but also across the years. For taught postgraduate programmes, there will be fewer design options available but still perhaps more flexibility than some institutions and departments have taken up. How might a Masters degree become more effectively 'connected'?

In the UK, a Masters programme is typically worth 180 credits. These are often made up of 120 learning credits, divided into taught modules, which often include some optionality for students, followed by 60 credits allocated to an independent research project. Because postgraduate programmes may only last for one year, there is particular benefit in designing the curriculum very carefully to make sure that students negotiate the transition into postgraduate study quickly and become fully prepared to undertake the research study needed in the final year phase.

This preparation often takes the form of a designated module about research, for example introducing methodologies, methods and ethics, and/or embedding aspects of these topics into the wider module choices. As with undergraduate programmes, it may be useful and possible to create a linear module that lasts the full length of the period of study, for which students experience a combination of peer and tutor support. Such a module can both introduce approaches to research and support the student through their choices of research project. It can even make use of the Showcase Portfolio approach (Chapter 7), inviting students to collate and/or curate their best work, including their research dissertation, and to present it as a whole.

Similar functions can be carried out in an academic tutor group, which can offer some individualised support and guidance as well as challenging students in groups to deepen their levels of overall understanding and extend their intellectual and practical skills. The number

of students in a cohort and ratio of students to teachers will help determine what is practical.

4 Key questions for departments and programme teams

The key questions for departments, programme leaders and teaching teams to consider include:

1. When and how are we empowering students to make explicit connections between apparently disparate elements of the programme(s)?
2. How are we ensuring that students build steadily their capacity for collaborative and independent research and enquiry, and that they are able to describe these research-related skills?
3. With the above questions in mind, are we happy with the relationship of modules or sub-units to one another in terms of degree of difficulty and centrality to the programme aims?
4. Are we assessing students' learning in such a way that aspects of their personal learning story, as well as the different elements of their learning, are captured?
5. Are we content that core modules, if not all modules, situate the students, whether in small groups or as individuals, as active, critical learners?
6. Does the progression of student assessments, in terms of the content of what is being assessed, look 'joined up'?
7. Do the types of assessment across the programme (e.g. essays, group projects, video documentaries, presentations, responding to a design brief) link logically together, testing a range of skills?
8. Is the pattern and timing of assessments such that students can receive constructive feedback on formative activities before being formally (summatively) tested to allocate marks or grades?
9. Has the programme team agreed on an appropriate range of feedback methods (e.g. personalised written feedback; online group feedback that synthesises key learning points for the whole cohort; face-to-face feedback in small tutorials, tutors' 'office hours', or seminars)?
10. Has the programme team decided how to communicate these feedback methods clearly to students, so that they understand fully that they are vital opportunities for feedback that will feed into their future learning? If necessary, are students asked to refer

to and use that feedback explicitly, for example by synthesising key learning points in an academic tutorial or on the cover sheet of the next assignment?

11. Is the overall balance of mandatory and optional modules right for the discipline and context?

12. Looking at the design of the programme as a whole, is there a clear rationale for the structure in terms of increasing the levels of difficulty through the phases of the programme?

The invitation to use the above questions assumes that all members of a programme team – those who contribute to the teaching and assessment on that degree – recognise the importance of seeing the programme as a whole, rather than just seeing it as a set of loosely connected units of study. The institution has a role to play here in creating spaces for collective planning and promoting a shared sense of responsibility. Knowing why it is helpful for students to make connections across the elements of their study can be helpful and we turn here to underpinning theory.

5 Learning as a coherent personal narrative of enquiry

This dimension's focus on *enquiry* as an integral part of curriculum design is not just about building enquiry-based learning opportunities through the length and structure of the programme, although this is important; it is also about empowering students to use enquiry to develop their own coherent story of who they are, what they can do and where they want to go. Each student comes into higher education with her or his own personal story. Characteristics such as educational background, nationality, ethnicity, religion, class, gender, sexual orientation, accessibility needs, age and current personal circumstances will differ: each has a unique personal story and identity that needs to be respected. To become educated is not just to know more; it is about confidently being who you are, and taking ownership of the ways in which you are changing as a person through intellectual critique and interpersonal engagement.

A great deal has been said and written about 'student experience' in recent years, much of it conflated with ideas of 'customer experience' rather than about how students encounter learning and enquiry as part of their wider lived experience. The second dimension of the

Connected Curriculum framework, 'A throughline of research activity is built into each programme', directs our attention not only to the overall shape and structure of the whole programme of study and the impact of its design upon students' learning but also to the extent to which they experience a coherent developmental journey of discovery that is *meaningful* to them. If we see education as a form of moving towards a new picture of oneself through critical dialogue with others, it is inherently about developing one's own identity, voice and story.

There has been a growing interest in the importance of narrative to education in recent decades, both as a research methodology and as a means of making sense of complex human experience over time. Jerome Bruner, a leading psychologist and educationist of the twentieth century, observes that the term derives from the verb 'to tell' (*narrare*) and also from a noun meaning 'knowing in some particular way' (*gnarus*). He describes a neurological disorder called *dysnarrativia*, a severe impairment in the ability to understand stories (2002, 86, 89). This impairment prevents our being able to make sense of ourselves, because narratives:

> impose a structure, a compelling reality on what we experience, even a philosophical stance.

Narratives allow us to look backwards and forwards, as well as interpreting the present; they enable us to make sense of our experience over periods of time (Bruner 2002; Clandinin 2000; Clough 2002; Erben 2000). And narrative is not just about the experience of one individual; it enables us to express our engagement with others through our uniquely human 'capacity for intersubjectivity', which is 'a precondition for our collective life in culture' (Bruner 2002, 16). Gadamer's 'merging of horizons', in the tradition of philosophical hermeneutics, finds an echo here once again.

Each student who comes to study in higher education is also coming into a new sense of self: our personal identities are changed when we study and these changes may be particularly significant to those for whom coming to higher level study is not the norm in their culture, class or local peer group (Fung 2007). Bruner notes that:

> there is no such thing as an intuitively obvious and essential self to know, one that just sits there ready to be portrayed in words. Rather we constantly construct and reconstruct our selves… Telling oneself about oneself is like making up a story about who and what

we are, what's happened, and why we're doing what we're doing. (Bruner 2002, 64)

Narrative is particularly effective for capturing change over a period of time, and learning always involves change. Michael Erben (2000), drawing on Bruner's work, argues that:

it is narrative that provides the cohering mechanism to make such experience comprehensible. (Erben 2000, 383)

An advantage of narrative as a form of knowing is that 'it does not regard lives (or the interpretation of lives) as collections of segmented events' (Erben 2000, 383). It is common in higher education for 'student experience' to be measured through surveys, and also common for students' learning to be tested in examinations at given moments in time. These instruments take a snapshot, gleaning information about particular aspects of experience or insights into knowledge of a particular field at a given moment. Both have their uses. But through developing a more holistic learning narrative, students can construct a more nuanced picture of their emerging sense of who they are and of how they relate to their discipline(s) and the world around them:

A self-making narrative is something of a balancing act. It must, on the one hand, create a conviction of autonomy, that one has a will of one's own, a certain freedom of choice, a degree of possibility. But it must also relate the self to a world of others – to friends and family, to institutions, to the past, to reference groups. (Bruner 2002, 78)

The second dimension of the Connected Curriculum, then, is intended to highlight the importance of students' developing a coherent learning narrative.

A learning narrative can simply be an internalised, personal account. But it can be explicitly expressed to others via work produced by the students. This might be through a sequence of separate but conceptually related student assessments that communicate current learning to others. Students' learning narratives can also, where appropriate for the discipline, be developed more holistically, for example via a continuous portfolio (or Showcase Portfolio) of 'outputs' or 'products' that have narrative qualities, and/or through a narrative 'wrapper' in which students explicitly analyse some of the key relationships between different elements of the work they have produced. This is already familiar

territory in many professional degree programmes such as medicine and education; it is less common in disciplines that are not accredited in line with the standards of a given profession. Yet this approach may be just as useful for all students, especially where they are often learning through active research and/or enquiry, where they are engaging with more than one, narrowly framed discipline, and where they are learning beyond as well as within the formal curriculum, for example when taking up work placements or studying abroad. Developing a personal learning narrative as part of a programme-wide portfolio, in whatever form, can also help students articulate their knowledge, skills and achievements to prospective employers (Chapter 5).

In what forms *might* such a connective narrative be expressed? This is likely to vary across disciplines. The sense of a student's unfolding learning story may be captured indirectly through written text which is relatively impersonal, for example in the form of an analytical 'metastudy' of a sequence of related topics. It can alternatively be conveyed through a more personal reflective journal with analytic qualities or through a holistic professional or creative portfolio. With the use of accessible new technologies, it can also be expressed through more visual means such as storyboards, blogs or film documentaries. Whatever the form of communication, a student's personal story may also be co-created, at least in part, for example with peers, researchers, practitioners or technical specialists. We will consider more of the possibilities afforded by student assessments in Chapter 7.

6 Vignettes of practice

Creating a connected 'throughline' of research and enquiry and thus enabling students to own and create their own learning narrative is a complex but rewarding design challenge. There is no simple 'quick fix' for this but there is a spectrum of possibilities for programme teams to consider.

The following vignettes of practice highlight the diversity of possible ways of enabling students to make conceptual connections across different topics, modules and/or investigative projects. The first is an example of a Showcase Portfolio from the University of Sydney, in which students select their best work over a period of time to exemplify their insights and skills. The second shows how at UCL one discipline has designed its modular undergraduate programmes to include a connected sequence of core modules, which support the development of a fieldwork portfolio and a critical blog addressing global issues. The third illustrates the use

by another UCL discipline of a personal tutoring programme that challenges students to make connections between different elements of their learning across all three years of study, and the fourth vignette illustrates a co-curricular approach to the development of a connected professional development e-portfolio at the University College Dublin Medical School.

1. Holistic portfolio for health professional students at the University of Sydney, Australia

This portfolio for health professional students studying medical imaging at postgraduate level asks them to collect one medical image of particular significance to them, every week across their two-year programme. They are asked to research the anatomy/pathology identified in the image and write half a referenced page of explanation/reflection. For example, they might analyse whether the image represents a typical or an atypical finding for that particular anatomy/pathology.

It is crucial to provide initial structured support and this is done through a dedicated portfolio tutorial in which students work on a scenario-based example, from which they create their own exemplar, with class-based discussion and feedback. The students' portfolios start with simple accomplishments early in the programme and build in complexity as their experience and confidence grows. Towards the end of their programme, they have almost 100 entries from which to curate a showcase portfolio evidencing their level of expertise across the domains required for professional accreditation.

Introduced to encourage the kind of learning they would need *beyond* the course as they move from competence to expertise, the importance of the portfolio to students *during* their course is that both clinical supervisors and academic staff alike can simply and rapidly appreciate (and assess) the level of progress the student has made and provide necessary assistance and/or challenges where needed. And *after* qualification they have developed a routine for evidence-based practice and continuing learning. The portfolio thus serves both formative and summative purposes during the course, is used as a showcase portfolio at the end of the course and, importantly, influences future learning in professional practice.

Vignette of practice submitted by Dr Jillian Clarke, Senior Lecturer, Discipline of Medical Radiation Sciences, Faculty of Health Sciences, University of Sydney, Australia.

2. Designing a research throughline in undergraduate Archaeology degrees at UCL, UK

The undergraduate programmes for Archaeology students at UCL are deliberately structured around a sequence of compulsory modules, each focused on different aspects of research and skills training. These culminate in a large, final year research dissertation. In the first year of study, students take 'Introduction to Archaeology' and 'Field Methods' and in the second year they focus on 'Interpreting Evidence' and 'Research and Presentation Skills'.

Students also take, in parallel, a set of compulsory modules connected by a common theme, that of global citizenship. These modules focus on world archaeology, archaeological theory and public archaeology. All students undertake at least 70 days of archaeological fieldwork, museum placement or public engagement in diverse locations around the world. Some students also elect to participate in UCL's Global Citizenship programme, a two-week summer project in which students from different disciplines meet to address a complex global challenge (https://www.ucl.ac.uk/global-citizenship/programme).

The structured progression of linked activities through the undergraduate Archaeology degrees equips students to complete a critical fieldwork portfolio and also to create a blog in which they discuss the relevance of archaeology to major issues of public debate. Alongside the mandatory 'throughline' modules, students take a number of optional modules so that they can shape, customise and extend their own learning. Towards the end of their second year, students identify their final-year dissertation topic and are given supervisorial support to undertake original research. This is discussed through an oral presentation prior to the submission of a 10,000 word thesis.

Vignette of practice submitted by Professor Sue Hamilton, Professor of Prehistory and Director of the UCL Institute of Archaeology and Dr Bill Sillar, Chair of the Institute of Archaeology Teaching Committee.

3. Personal tutoring to facilitate connected learning on the BA Education Studies programme at the UCL Institute of Education, UK

This Personal Tutoring Programme at the Institute of Education has two main aims. First, the personal tutor works with students

throughout their degree to help them to produce a narrative portfolio. Second, the personal tutor helps to guide their students' overall academic progress, supporting their personal and professional well-being and development during their studies.

Every student on the BA Education Studies degree is assigned a personal tutor at the beginning of their first year of study, who works with them through the entire three years of their degree. Each personal tutor works with a group of about 10–12 students in a given year of study. Students typically meet with their personal tutor at least six times over the year, towards the beginning and end of each term. Some of these opportunities to meet might be group meetings with the other students who are part of their personal tutor group and some will be individual meetings with their personal tutor.

On the BA Education Studies, we believe that students should be able to graduate with more than just a number. They should be able to leave with a detailed narrative account that describes the actual work that they have been doing during the three years: this is the narrative portfolio. Every student's portfolio will be unique and the product of the work that they do with their personal tutor. The kinds of things that their portfolio will document might include: their own learning goals and approaches; the specific issues, theories and concerns that motivate their work; the specific topics and debates that they have worked on in their module assignments; the links that they have made between their different modules; and the connections they have made between their modules and other areas of their work, public, community and family life.

A narrative portfolio has many uses. For example, it can help both the students and their personal tutors make informed decisions about the best module options for them, about the best essay topics to work on within their modules, and about dissertation topics. Toward the end of their time on the programme, it can help the student and tutor put together detailed letters of recommendation, letters of application and personal CVs to send on to employers or postgraduate programmes. Throughout the students' time on their course and beyond, their narrative portfolio can help demonstrate both to them and to others that the work they do at university has far more richness and meaning than could ever possibly be measured in one single numerical mark.

Vignette submitted by Stuart Tannock, Programme Leader, BA Education Studies at UCL Institute of Education.

4. Medical Professionalism in Research and Education at University College Dublin (UCD), Republic of Ireland

In the UCD School of Medicine a new 'connected curriculum' initiative is under development. Entitled *Medical Professionalism in Research and Education* (MPRE), it will run in the co-curricular space for the duration of the medical degree programme. By using digital badging as a reward mechanism, students will be incentivised to take ownership of their learning journey through the programme and onwards into the Continuing Professional Development (CPD) space.

By means of a reflective e-portfolio, students will be guided through four digital badging levels (bronze, silver, gold and platinum), which will encourage and prompt students to invest in learning opportunities. Students will be rewarded for engaging in relevant co-curricular activities, research modules will be available as electives and, as the student progresses through the curriculum, they will also be rewarded for mentoring other students who are beginning on their learning journey. Each of the digital badging levels have various criteria attached, which the students can engage with and then reflect on their activities in their e-portfolio. The intention is that, by the end of their time in Medical School, students will have a comprehensive portfolio of their professional activities in research and education. They will then continue with this reflective practice as medical practitioners. The ultimate aim of MPRE is to foster and promote the continuous learning cycle in medicine of observation, participation and demonstration that occurs throughout a medical career.

Submitted by Dr Cliona McGovern, Assistant Professor, Forensic & Legal Medicine, School of Medicine, University College Dublin, Republic of Ireland.