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Connecting research and teaching through curricular and pedagogic design

From theory to practice

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Introduction

This chapter focuses on one institutional strategic change programme (Curriculum 2016+) and the journey from conception to realisation of the programme's first stage: the process of curriculum and pedagogic design and programme validation. To begin, we provide a brief overview of the aims, scope and process of the Curriculum 2016+ programme. We move on to discuss the new approach which lay at the heart of its curricular development activities and was embedded within curriculum design processes and documentation. Finally, we explore how the curriculum development process was executed in three disciplinary settings (Sport Rehabilitation, Computer Science and Youth Work and Community Development) to highlight the contrasting ways in which different programme teams approached the challenge of redeveloping their pedagogies and curricula. To conclude, we offer some overall observations, reflections and lessons learned that we hope will be helpful to others undertaking similar curriculum development activities in the higher education sector. While not directly structured around the Connected Curriculum six dimensions of practice (see Editors' introduction and

Fung 2017), where activities reflect or resonate with aspects of these dimensions, these connections are highlighted and explored in the detail of the chapter.

Background

In 2013 the University of Hull embarked on a strategic journey involving complete curriculum and pedagogic redesign. Key to this strategic decision was a recognition of rising stakeholder (student and employer) expectations, the changing technological landscape and the growth of the digital knowledge economy, the increasing competition within the higher education sector (in both research and teaching) and a need for continued improvement in overall academic quality. It was recognised that these challenges may not be fully addressed through the usual incremental and risk-based continuous enhancement processes that underpin curriculum and teaching development in higher education. As such, a step change in the way the university met its educational mission was required. A major change programme, Curriculum 2016+ (C2016+), was established in December 2013 to coordinate this step change, comprising five interrelated projects and reporting to a programme board chaired by the Pro Vice Chancellor for Learning and Teaching. With the prime focus on improving the overall student experience, these included a holistic market-facing review and evaluation of the existing portfolio, the creation of a roadmap for the development of learning technologies and digital literacies and the development of a co-curricular employability award. However, key to the chapter presented here were two interrelated projects:

- Connecting Research and Teaching through Curriculum and Pedagogic Design – the promotion of whole institutional re-engagement with curriculum design and pedagogy as an academic endeavour; and
- Regulations, Responsibilities and Processes – the design of new approaches to quality assurance and enhancement to underpin curricular and pedagogic design work and to ensure responsiveness to new opportunities and future developments.

These two projects together developed a flexible end-to-end process for curricular and pedagogic design, reflecting the desire to maximise opportunities for innovation while acknowledging differences in resources, expertise and

epistemic starting points across disciplinary programme teams. Throughout the curriculum design process academic programme teams were supported in a range of flexible ways including a re-imagined developmental and dialogic programme validation process which prioritised the development of academic practice, understanding and knowledge throughout.

The change programme completed in July 2016 following the successful re-design and validation of over 680 undergraduate and postgraduate programmes, the majority of which demonstrated considerable change in their learning, teaching and assessment approaches. The phased introduction of this new academic portfolio and associated policies and processes began in September 2016 and wrapped up in September 2017. A second stage of the curriculum programme will assess the level and effectiveness of the planned changes in learning, teaching and assessment in practice.

At the heart of the design process was an underpinning vision and approach which was developed to encourage and support staff to make explicit the connections between their teaching and research within and across disciplinary communities and contexts and to engage staff in developing disciplinary and practice-based pedagogies and assessment practices that reflected real-world learning. These foci connect directly with dimensions 1, 3 and 4 of the Connected Curriculum framework, and it is to a discussion of them that the chapter now turns.

The C2016+ approach: connecting research, teaching and the real world

The C2016+ design approach was strongly influenced by the insights of Lee Shulman (1993) and Tony Wagner (2008), and was designed for Hull with two key aims in mind. First, to promote the recognition of the need for single rather than separate spaces and approaches to research and teaching in the university in order to ensure that students connect with and understand research and teaching in holistic 'disciplinary'[1] ways (see Shulman 1993) and second, to support staff and students to make explicit the now recognised connections between the skills of citizenship, work and learning in contemporary society (see Wagner 2008).

To achieve the first of these aims, programmes design teams, including wherever possible students, were asked to provide compelling pedagogic rationales as to *why* the chosen teaching, learning and assessment approaches were the most appropriate to use and how they would support students to achieve planned curriculum outcomes, in the

same way that a research methodology would be expected to provide the rigorous bedrock and process by which valid research outcomes could be achieved. This approach was led by the development of a university *Vision for Learning: Connecting Research and Teaching*, which is reproduced in part below:

> *The research, teaching and learning activities of our staff and students are fundamentally interconnected through academic disciplines, fields of study and areas of professional practice. Our understanding of this interconnectivity goes beyond simple research-teaching linkages [recognising] … the shared epistemic origins of research, teaching and learning practices in University settings.*
>
> *This approach helps us to recognise why teaching and learning take different forms and have distinctive characteristics across the institution and allows us actively to foster these differences. … Students from all programmes of study are encouraged and supported to articulate how the skills, knowledge and understandings that they have developed equip them for life in the world of work and prepare them to become active, responsible and reflective global citizens.*

In addition, a briefing note and diagram (see Figure 10.1) were developed to engage students and staff in understanding how the approaches to and processes of research *and* teaching (methodologies *and* pedagogies)
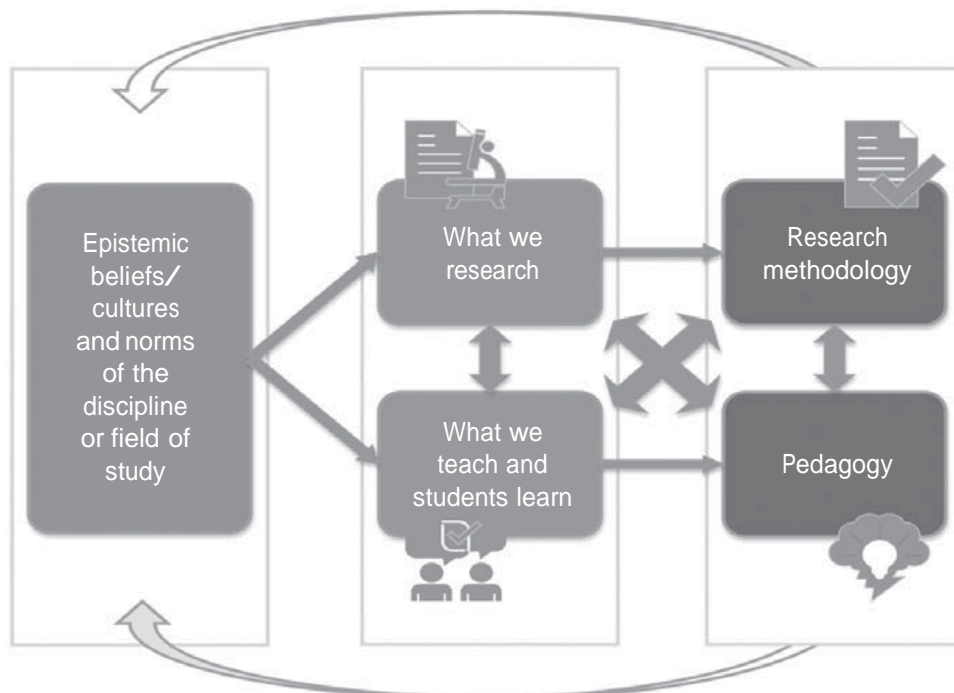

Fig. 10.1 Connecting research and teaching in disciplinary communities (Cleaver 2014)

are both informed by the epistemic underpinnings of the disciplines from which they emanate, and to which they actively contribute.

To realise the second of the aims – to make stronger connections between academic learning and the skills and practices of the real world – teams were asked to identify ways in which their academic programme and pedagogies could be meaningfully linked with the skills of the workplace and citizenship and how best to engage students in understanding these connections. Teams were also asked to identify how any attributes or skills that had been absent in the past, perhaps due to a perceived irrelevance to the academic discipline, might now be meaningfully incorporated. For example, how might enterprise and/or entrepreneurship be approached and developed within their disciplinary context? And how might traditionally text-based disciplines, such as English or Philosophy, meaningfully engage with quantitative approaches and skills?

This provided the foundations for the development of an approach where programme teams worked together to challenge and enhance curricula and pedagogies in ways that supported students to connect with staff and their research, to make connections out to the world and to connect academic learning with workplace learning. Key to this was an explicit focus on and exposition of the *big ideas* at the heart of each programme of study, the ways of 'knowing', 'thinking' and 'doing' or 'practising' in a discipline, field of study or area of practice (see Hounsell and Entwistle 2005) and the 'disciplinary habits of mind' that teams aimed to build and support in their academic and student communities (see Shulman 2005; Gurung et al. 2009). In addition, teams were asked to identify key programme-level threshold concepts (Meyer and Land 2003) that aligned to each programme's big ideas, ways of thinking and practising and disciplinary habits of mind.

Throughout, teams were asked to *make the implicit explicit*, to ensure that connections were made between academic skills and the skills of the workplace and society and that authentic formative and summative assessment tasks were developed to confirm that such 'ways of knowing, thinking and practising' had indeed been achieved. Teams were further encouraged to *think outside the module box*: to work together on and share their curricular and pedagogic designs to ensure that connections across and within programmes were explicit and that assessment strategies were coherent and planned.

A series of reflective questions was developed within institutional briefing notes, each articulating and supporting the achievement of a key curricular and pedagogic design theme and set of expectations. For

example, questions focused on whether programme and module aims and outcomes reflected an ethos of inclusion; whether the curriculum reflected a broad range of real-world examples and provided opportunities for students to draw on 'life-wide' experiences; whether students had opportunities to effect or contribute to positive change and development in communities (learning communities, local communities, workplaces) through action or research; whether curricula contributed to the enhancement of intercultural understanding and an international outlook; and whether clear connections were made between disciplinary manifestations of skills and attributes and wider graduate workplace skills.

As part of the end-to-end process of design and implementation, such questions and themes were integrated into the curriculum design phase of the university's quality assurance and enhancement framework and became central to the redesigned programme and module validation process. The new validation events themselves were reimagined as academic discussions rather than what had become perceived as a tick-box quality assurance hurdle to navigate. The new events were centred around critical dialogue between the programme design team, external and internal academic colleagues, students and external stakeholders, and learning from the development process was discussed and shared beyond the immediate attendees and at sharing and exchange events.

Connecting research and teaching in practice: some disciplinary reflections

To gain an insight into how this curriculum design approach was both interpreted and applied, we asked three programme areas – Sport Rehabilitation, Computer Science and Youth Work and Community Development – to discuss their C2016+ experiences.

Sport Rehabilitation – Colin Johnson

C2016+ enabled many of the thoughts, ideas and approaches previously discussed within the programme team to come to life. The opportunity to redevelop our programmes was met with a collective level of enthusiasm, motivation and desire to create student-centred, fit-for-purpose, curricula.

To add some background, the existing BSc Sport Rehabilitation was accredited by The British Association of Sport Rehabilitators and Trainers (BASRaT) with the profession recently approved as

an Accredited Register, administered by the Professional Standards Authority for Health and Social Care. Since 2013, Sport Rehabilitation has been formally recognised as a healthcare profession within the UK, which constitutes a huge step in terms of recognition and regulation within the field of neuro-musculoskeletal injury management. Such recognition brings the requirement of high levels of professionalism and competency to the fore for those working within the field: the Graduate Sport Rehabilitator (GSR).

Such standards were the catalyst for the programme team's initial approach, encouraged by the C2016+ ethos of a programmatic focus and making the implicit explicit. From a pedagogical perspective we were already implementing examples of good disciplinary practice including problem-based and peer-assisted learning, but often more at the modular level and without overall programme-level coordination. C2016+ gave us the opportunity to 'think outside the module box' and consider programme-level design in a progressive and coherent way.

The start point was the identification of the key graduate attributes and skills that characterise the practising GSR. These then became the inspiration for the *big ideas* underpinning the programmes: a*utonomy*, *working with others*, *competency* and *clinical specialism.* These ideas were mapped and developed across all programme stages enabling a clearer picture and shared understanding of the journey towards the development of the 'Hull GSR'. In the vast majority of cases these themes were apparent within the existing pedagogical approaches and module content but, importantly, were not always explicit, either within existing module descriptors or associated assessment strategies.

For example, problem-based learning (PBL) is a disciplinary pedagogic approach which is extremely relevant to the GSR in practice and clearly connects academic learning with workplace learning. However, the way this had previously been incorporated into our modules was highlighted by students as simply adding to their workload; the value of the real-world skills and understanding that it fostered was not evident to them. This informed a comparative exercise between the old and the new: how could we make our ideas come to life both on the page and from the page? From a personal perspective this period of time signalled the most significant indicator of the flexibility that the C2016+ design approach provided.

The reconsideration and streamlining of module focus, content and assessment from the programme perspective was coupled with the design of three end-of-stage thresholds for Levels 4, 5 and 6. Group PBL has been written into the curriculum at stage rather

than modular-level and students are now supported to work across the whole academic year on a given clinical case scenario, with the focus of the tasks based upon specific topics covered within modules during the year. The same case scenarios will be used throughout the three years of undergraduate study with layers of complexity added at each level. For example, at Level 4 students focus on anatomy and principles of injury assessment while at Level 6 students will consider neurological involvement coupled with the presentation of psychological issues. This new approach is designed to ensure that tasks culminate in an end-of-year presentation to peers from all years demonstrating aspects of *autonomy*, *working with others* and *competency.* This particular example enthused both staff and students who were consulted on the approach. Our students, although acknowledging the pressure of presenting in front of their peers, could see the real-life application of what was being proposed.

Students were involved in discussions and consultation throughout the C2016+ process and their input was particularly useful when consideration turned to the terminology employed by the programme team. C2016+ encouraged programme teams to design their programmes using student-relevant language, and student feedback from all year groups encouraged a hybrid of the old and some newly proposed terminology and helped the programme team to maintain their focus on making the programme aims, its pedagogies and its intended outcomes meaningful and explicit at all times.

A distinctive feature of the new Sport Rehabilitation portfolio is the introduction of a four-year Integrated Masters programme (MSci), the first of its kind within the field. This provides our students with the opportunity to follow a tailored pathway into postgraduate study and develop clinical specialism to further enhance their employability. This, as well as some of the examples highlighted earlier, has been acknowledged within the wider Sport Rehabilitation and Therapy education community and is testament both to the innovative approach, enthusiasm and foresight of the programme team and the freedom and ownership accorded to them by the C2016+ design approach.

Computer Science – David Grey

The broad, overarching intents of the new undergraduate and postgraduate programme portfolios in Computer Science were based on the applied ethos of the department and the key aim to develop computer science graduates that are capable of 'doing' and able to make an

immediate contribution in the world of work. The department identified two small staff teams, each of circa five individuals, to lead the development of the programme portfolios. The teams followed the design approach provided by C2016+, undertaking programme-level design rather than the modular content-led approach that had taken precedence in earlier development and redevelopment cycles. Each team worked to identify programmatic *big ideas* then shared these to crosscheck and evaluate their choices; they then worked on identifying the key threshold concepts (Land, Meyer and Baillie 2010) that would inform the programme narrative, aims and outcomes. Many of the programme *big ideas* (e.g. *learning by doing* and *the importance of real-world application*) and threshold concepts (e.g. *object orientation* and *object thinking*) were informed by the broad intents of the portfolios. A mapping to the programme professional body requirements (British Computer Society) was of key importance during this process to ensure continued future accreditation and national comparability of the programmes.

Following this initial design phase, a student focus group consisting of all course representatives from existing programmes was convened to discuss the proposed programme-level design, associated *big ideas* and possible delivery (module) structures. In parallel, the designs were shared with all academic staff to ensure that a common understanding of the programme design approach, and the choices made, was in place. All staff were then involved in the detailed design of the revised programmes and individual modules, with each staff member being involved in the design of at least one module.

The C2016+ approach differed from previous departmental approaches to programme design in a number of ways. From the outset it was more student-centred, involving more and regular student involvement in each of the design phases. There was also greater involvement of all academic staff and greater consideration of the pedagogies and assessment approaches to be used. Previously, programme design was largely undertaken by a small team and although colleagues had some involvement in contributing to specific module indicative content, often in isolation from one another, little consideration was given by all staff at the design stage to whole programme key themes, *big ideas* and outcomes and the pedagogic approaches that would lead to real-world student success. C2016+ offered a whole-team opportunity to consider learning and assessment approaches in detail at the design stage, to take stock of the approaches currently in use and to intentionally choose pedagogic approaches to benefit the students and to develop their employability skills.

As part of this process, we have particularly drawn on the insights of Christie (2009) who identifies signature pedagogies for Computer Science, which include:

- developing students' abilities in object thinking;[2]
- engaging students in *problem solving* and *learning through doing*;
- focusing on the *real-world applications* of computer science;
- emphasising the team-based and *collaborative* nature of the profession; and
- using *visual approaches* to explaining complex computer science concepts.

While these were already used to a greater or lesser extent within existing modules, we had not considered how they mapped across the programme to inform student development. For example, the new programmes now have a core focus throughout on group working. This is, in part, facilitated through increased placement learning opportunities which can be undertaken for a whole year or within modules, offering students real-world experience of the computer science profession and its collaborative approaches.

The language with which our programmes are communicated to our students has also changed. Legacy programme specifications and handbooks focused on technical professional body outcomes and the mechanics and structure of the programme. In the new programme documentation the *big ideas* of the programmes and associated teaching, learning and assessment approaches are articulated clearly and explicitly for a student audience.

The C2016+ experience significantly changed the approach to curriculum design taken by our programme teams and there have been many positive outcomes for our students. Staff have had new opportunities for development, with those involved in programme design encouraged and supported to reflect critically on existing and new pedagogic approaches and methods. Perhaps a lesson learned was that we could have benefited from more whole team involvement from the outset. The inclusion of further opportunities to pause, think, reflect and discuss developments throughout the project may have facilitated this collective creativity and ownership, reducing the number of changes that may now occur as the new programmes are delivered. It is important that, as the curriculum is rolled out, the collaborative and discursive approach that we have developed between staff, students and other stakeholders is fostered and expanded. This will not only be of benefit

to the new programmes but is also vital if we are to further model to our students the distinctive collaborative practices that lie of the heart of the Computer Science professional community.

Youth Work and Community Development – Julie Rippingale and Sinead Gormally

The BA Youth Work and Community Development programme has two Professional Statutory and Regulatory Bodies (PSRBs) and is staffed by a small team of four academics. In adopting the curriculum design approach at the heart of C2016+, the team developed and adopted a robust, highly participatory and transparent process which involved in excess of one hundred people. This included current students and past graduates, partner youth work and community development organisations from the statutory, voluntary and community sectors and legacy programme external examiners. The programme team facilitated the involvement of all stakeholders, collated the various viewpoints and utilised the findings throughout the process. Collectively, *the big ideas* and associated *ways of thinking and practising* within youth work and community development were developed. The following *big ideas* were formulated to incorporate programme-level threshold concepts (Meyer and Land 2003):

1. Developing critically informed educators equipped to work multi-disciplinarily in a range of environments, contexts and cultures.
2. Developing critically reflective practitioners and learners who can be self-directed and work as part of a team.
3. Connecting theory, policy, politics and practice.
4. Helping students to confidently articulate professional values and resolve conflicts between their professional and personal identities and values.

The programme team were all conversant with threshold concepts prior to the C2016+ development process and were therefore actively engaged in identifying and mapping programme threshold concepts to appropriate levels of the proposed new curriculum. These formed the framework for the entire curriculum design and provided an explicit focus for student learning and progression. By virtue of our PSRB requirements, the legacy programmes had also involved a range of stakeholders; however, a modular development approach had been previously used. *Thinking outside the module box* at programme level was empowering. The process

started with a clean page and an objective and contemporary view of the discipline as a whole. This ensured that modules did not reappear because they had always been taught and rather allowed new ways of thinking and doing to emerge.

Involving a relevant range of stakeholders throughout the process was key to the success of the curriculum design and modelled the participatory paradigm that is central to youth work and community development (Ledwith 2011). Practitioner symposiums were facilitated on the university campus and key questions were asked in order to gather valuable information that would relate to the creation of a meaningful curriculum. Students and graduates were involved in similar processes both in group sessions within the university and through an open space which displayed the curriculum development flip charts. Student participation was crucial in identifying where thresholds needed to be crossed in order to achieve higher level conceptual understanding, and which thresholds proved more difficult to navigate or were simply misplaced. For example, the previous programme of study taught a module entitled 'Ethics and Values' at Level 6 but students very clearly identified that this needed to be a Level 4 concept as it was foundational to their professional practice and academic learning. Similarly, students were directly involved in the process of naming new modules and testing out the terminology used. Students fed-back that a legacy Level 6 module 'Critical Pedagogy' needed to use more accessible terminology and be introduced earlier. The result was a new module 'Education and Social Change' (Level 4). Essential to this process was the commitment and feedback of our programme external examiners and the two PSRBs which had agreed to pilot the first undergraduate dual-accredited programme in Youth Work and Community Development.

Central to the development of teaching and learning strategies and the planning of resources was the ethos of critical pedagogy. This approach utilises mixed methods to ensure praxis between academic study and professional practice placements – both central tenets of the programme. As Cooper (2015: 44) states:

> Critical pedagogy … offers a dialogical approach to generating criticality where tutor and student co-investigate the object of study. It is an approach that encourages students to explore and reflect dialectically the nature of social problems beyond traditional understandings invariably founded on positivist epistemological positions.

The legacy programme tended to 'bunch' assessments together at certain periods using an extensive and often uncoordinated range of assessment methods. A comprehensive audit of student experiences of assessment was therefore undertaken, supported by C2016+ and TESTA audit tools (Gibbs, Jessop and El-Hakim n.d.). The result of this audit was that assessments and assessment periods were distributed more evenly, with greater opportunities for formative and summative assessment across the year. Modes of assessment were directly linked to the threshold concepts and were made more relevant to the academic and professional skills reflected in the programme's *big ideas*.

Our approach to curriculum design changed dramatically as a result of this process and we would not hesitate to use this again in the future. We are strong advocates of the process and have engaged in national conferences within our discipline to share our experiences in addition to hosting visits from other institutions who have taken an interest in our approach. The C2016+ approach facilitated the inclusion of external stakeholders which, in turn, resulted in new scholarly knowledge within the team and a greater understanding of our disciplinary approaches to learning, teaching and assessment. We also believe that this process allowed us to achieve something that colleagues across the sector had deemed impossible: we became the first undergraduate programme in England and Wales to receive dual professional accreditation for youth work and community development.

For colleagues embarking on a similar journey, we believe that the following were key to our success:

- engaging in a clear, robust process;
- adopting a collective working ethos and practice;
- having visible, collective documentation of the process, e.g. flip charts;
- drawing on professional practice partner feedback, requirements and wishes; and
- using student and graduate feedback, experience and recommendations.

At the end of the first year of the new programme there is strong sense of ownership among stakeholders. We have a dynamic, exciting coherent curriculum which is highly relevant to the discipline and puts students at its heart. Moreover, there has been a significant increase in the number and quality of student applications and a vast increase in professional practice placement provision.

Concluding comments

As many across the sector will testify, the complete redesign of pedagogies and curricula across a whole institution is a mammoth undertaking and, to be successful, requires strategic direction and support as well as agility in its implementation. The consistent yet flexible design approach at the heart of C2016+ was key to providing direction for such changes at the University of Hull, while encouraging bespoke innovation and customisation within disciplines. As we hope is evident from the vignettes included above, each programme team adopted a locally relevant approach, reflecting both their disciplinary and organisational cultures as well as the needs of their external stakeholders and students. Thus, while there has been greater emphasis on top-down programme design, team development and partnership working with students and external stakeholders, flexibility has remained at the core of the design process. This has resulted in curricula that in a range of ways embody the values of the University of Hull, meet the expectations of relevant Quality Assurance Agency (QAA) Subject Benchmark Statements (QAA n.d.) and PSRBs, reflect the distinctive skills and approaches of each disciplinary team, reflect the skills of citizenship and meet the needs of employers.

Throughout the change programme, the end-to-end process for programme development and approval has undergone considerable development and adaptation. While we clearly needed a rigorous approvals process to meet QAA expectations, we also wished to ensure that the process was meaningful to academic teams. As such the new process was developed around critical dialogue between academics, students and other key stakeholders to ensure a meaningful, developmental, supportive and collegial approach. To ensure that the process was and remained fit for purpose, regular contact and discussions between quality assurance and academic colleagues was key, as was a willingness, where necessary and appropriate, to reflect on, review and adapt processes and academic regulations. At first this flexible approach created some uncertainty for academic colleagues who had, to date, perceived quality assurance and regulatory boundaries as non-porous and inflexible. However, as our vignettes testify, this agility ultimately provided us with the components necessary to build a culture which encouraged rather than curtailed pedagogic and curricular enhancement and innovation; something which is of paramount importance in the contemporary UK higher education environment. Moreover, the new programme designs resonate closely

with and demonstrate in practice three of the six dimensions of the Connected Curriculum framework, explicitly making connections between research and teaching, connections out to the world beyond the university and connections between academic learning and workplace learning.

Ultimately, the impact and success of the C2016+ programme can only be judged once the curriculum has been delivered in full, and further analysis has been conducted. However, it is already evident that across the disciplines there has been considerable change within curricular portfolios, increased emphasis on partnership working with students, external stakeholders and professional service colleagues and a stronger articulation and ownership of programme pedagogies and design. The process and organisational changes that have either taken place or have been recommended, provide a strong platform for future enhancement activities.

As a final point it is important to note that the completion and success of this programme to date would not have been possible without the open-mindedness, commitment and, at times, patience of colleagues. We therefore take this opportunity to thank all those who were involved in making this possible.