Developing an Agile-based toolkit at The Open University to support the production of online learning content

Thesis

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Link(s) to article on publisher’s website:
http://dx.doi.org/doi:10.21954/ou.ro.00011d70

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Developing an Agile-based toolkit at The Open University to support the production of online learning content

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Doctorate in Education

October 2019

Redacted version
Abstract

Higher Education (HE) in the United Kingdom (UK) is changing, prompting universities to reconsider their position in a complex and uncertain sector. This thesis argues that university business models have not evolved to become responsive to change - unlike new providers who do not have years of history, culture and process to unravel and reform. This research informed the development of an Agile toolkit, based on the Agile philosophy, to support the production of online learning content. To be used to stimulate change, the toolkit enables practitioners to reflect on their practice and offers an approach to increasing agility.

Agile is an approach underpinned by a common set of values and principles derived from the numerous software development methods that sit under the “Agile” umbrella. Outside of academia, there has been a rise in the use of Agile methods to respond to the need to speed up efficiency and innovation. A review of the literature identified a need for research that offers a multi-dimensional perspective on the implementation of the Agile philosophy in HE and in the UK, where it is still an emerging phenomenon.

To address this gap, the research used Activity Theory to explore how Agile could be implemented within an academic context to realise benefits like those gained from its implementation in the software development world. Focusing on practice within The Open University (UK), this research sought to understand:

- Which current online production practices align with the Agile principles.
- How learning organisations can implement Agile principles and practices within the production of online learning content.

Using a flexible methodological framework to collaborate with practitioners for practitioners, the research compared a variety of existing production practices with Agile. It also surfaced a desired future way of working based on what practitioners value, providing a positive foundation for change.
Acknowledgements

With thanks to my research supervisors, Professor Allison Littlejohn, Dr Gareth Davies and Dr Beck Pitt. Thank you for your advice, guidance and precious time.

I would not have been able to conduct this research without people who were intrigued enough by the idea to give up their time to participate in the study. I am thankful that you saw this research as worthwhile and I hope it contributes something positive to the future of producing online learning content at The Open University and beyond.

And a special shout out to Barry Verdin who co-facilitated the Appreciative Inquiry-based workshop with me, and to my colleagues and friends, past and present, at the OU who have shared this journey with me. Thank you for your encouragement, support and reassurance over the last few years. It means a lot.
Dedication

I would like to dedicate this work:

- To my mum who has shown a superhuman level of courage and determination that I never thought was possible, and to my stepdad for being the rock we all need. You are an inspiration.

- To my dad for his relentless pride in what I do even though he has no idea what I am talking about most of the time.

- To my sister for the timely reminders that there is life and joy outside of studying.

- To my husband for being the best friend I could ever ask for. I would never have gotten to the end without you.

- To the numerous musical artists that kept me company while I wrote this thesis. My music collection has never expanded so much like it has in the last three and a half years.

I love you all.
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## Acronyms and initialisms

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<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>BIS</td>
<td>Department for Business, Innovation and Skills</td>
</tr>
<tr>
<td>CHAT</td>
<td>Cultural Historical Activity Theory</td>
</tr>
<tr>
<td>CREET</td>
<td>Centre for Research in Education and Educational Technology</td>
</tr>
<tr>
<td>DDI</td>
<td>Driving Disruptive Innovation</td>
</tr>
<tr>
<td>DSDM</td>
<td>Dynamic System Development Method</td>
</tr>
<tr>
<td>EDD</td>
<td>Doctorate in Education</td>
</tr>
<tr>
<td>HE</td>
<td>Higher Education</td>
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<tr>
<td>HEI</td>
<td>Higher Education Institution</td>
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<tr>
<td>HREC</td>
<td>Human Research Ethics Committee</td>
</tr>
<tr>
<td>IWB</td>
<td>Innovative Work Behaviours</td>
</tr>
<tr>
<td>LTI</td>
<td>Learning and Teaching Innovation</td>
</tr>
<tr>
<td>MOOC</td>
<td>Massive Open Online Course</td>
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<tr>
<td>OER</td>
<td>Open Educational Resources</td>
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<tr>
<td>OU</td>
<td>The Open University</td>
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<td>UK</td>
<td>United Kingdom</td>
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<td>US</td>
<td>United States</td>
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<tr>
<td>VLE</td>
<td>Virtual Learning Environment</td>
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Chapter 1. Context and rationale

1.1 Introduction

This chapter introduces the real-world problem the research was designed to address: universities are designed and structured in a way that makes it difficult for them to respond quickly to meet the challenges and opportunities afforded by change. It examines this problem through the lens of the external, political context in the United Kingdom (UK) and its influence on the internal, strategic context of The Open University (OU) – a large distance teaching institution based in the UK.

The changing context of Higher Education (HE) can be considered symptomatic of the changing nature of politics, economics and the environment that is occurring in our society. One interpretation of this change is the argument that a neoliberalist ideology is the root cause of crises suffered over the last decade as it ‘sees competition as the defining characteristic of human relations. It redefines citizens as consumers, whose democratic choices are best exercised by buying and selling’ (Monbiot, 2016). From this perspective, the shift of “learner” to “consumer” (Woodall et al., 2014), at the heart of increased competition, explored later in this chapter, is connecting to something bigger, beyond education.

There are several “big issues” facing society today including mass migration, the climate emergency, health care and equitable education. These issues will impact on the labour market, paving the way for jobs that require a different set of skills, competences and knowledge in order to provide solutions, or rendering some jobs obsolete altogether (Abdelaziz, 2012). This means people will be more likely to change jobs and careers and, in doing so, will require access to more rapid and flexible forms of learning. This implies another connection between education and society: the need for lifelong learning which emphasises continual knowledge and skill development (Abdelaziz, 2012; Beck, 2001).

In 2015, at the time the idea for this research was formed, Higher Education Institutions (HEIs) across the UK were continuing to find ways to understand and absorb changes brought about by political and pedagogical decisions made years prior. This chapter examines three drivers for change in HE: reduced funding, increased competition and new business models. The need to stay relevant and financially sustainable in a
changing education consumer market forced many institutions to reconsider their offer to prospective students, ensuring it represented value for money. This was evident in the increasing number of alternative providers, such as Coursera and Arden University, entering the education market, prompting many “traditional” face-to-face teaching institutions, such as St Andrews University and the University of Bristol, to experiment with new forms of provision, such as open online course production (Marszal, 2012).

This chapter explores one form of open online course production: the massive open online course (MOOC). The term “MOOC” was first introduced in 2008 to refer to a course running in a Canadian university that was available to fee-paying students and over 2,200 non-fee-paying members of the general public (Kaplan and Haenlein, 2016, p.443). Experimenting with open online course production was not something that the OU had to do; it has been providing free open educational resources (OER) to the general public since 1999 – first via its Open2.net website and then via its LearningSpace website in 2006. These websites would merge in 2010 to form the University’s single OER platform, OpenLearn (https://www.open.edu/openlearn/). As the MOOC movement gathered momentum outside of the UK, the part the University had to play was in using its pedagogical expertise in the creation of UK-based MOOC platform FutureLearn, which launched in 2013. While open online course provision may have been a key driver for change for many institutions, the need for change within the OU was driven by its inability to produce its core online curriculum quickly enough to meet demands of students, and of wider society.

Moving on from the wider contextual picture, the chapter discusses the perceived problem of universities’ inability to adapt and respond to change quickly by examining the strategic change agenda at the OU. As the University embarked on the largest change programme in its history, there was ample opportunity to explore how strategy can inform and change professional practice “on the ground”, to ensure the University is fit for purpose for the years and decades to follow. By connecting with the strategic context, this chapter offers a rationale for research that helps to build an understanding of how educational practitioners can transform their professional practice, to enable their institutions to become more responsive to change. To support this transformation, the chapter introduces a concept that has helped to improve the agility of organisations in other sectors: Agile.
This thesis explores two linked, but distinct, concepts: agility and the Agile philosophy. Agile is a phenomenon that has evolved over decades to improve production and development processes. Most notably used within software development, it has now been adopted across many industries (VersionOne, 2017). The Agile philosophy is an approach underpinned by a common set of values and principles derived from the numerous methods that sit under the “Agile” umbrella. Put simply, these methods are ways of working that emphasise people and communication, working software, collaboration and responding to change (Agilemanifesto.org, 2001a). In the context of this research, the Agile philosophy is positioned as one potential means to improving agility. To clarify the distinction further, specific definitions of each term are used throughout this chapter and the overall thesis:

**agility** (noun): to move quickly and easily

(Oxford University Press, 2019)

**Agile**¹ (noun): a way of working that relates or denotes ‘a method of project management, used especially for software development, that is characterized by the division of tasks into short phases of work and frequent reassessment and adaptation of plans’

(Lexico.com, 2019)

Most often used as an umbrella term for a group of associated methods, the concept of Agile can be broken down into five key parts:

- **The Agile philosophy:** A way of viewing the world that is driven by the need to uncover ‘better ways of developing software by doing it and helping others do it’ (Agilemanifesto.org, 2001a).
- **The Agile values:** Four core values that underpin the Agile philosophy.
- **The Agile principles:** Twelve principles that guide the translation of the Agile philosophy into practice.
- **The Agile methods:** Specific methodologies that align with the Agile philosophy and its guiding principles, such as Lean² or Scrum³.

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¹ Note: All references to Agile as a philosophy or methodology will be capitalised.

² The Lean Enterprise Academy UK (2019) define Lean as ‘… creating the most value for the customer while minimising resources, time, energy and effort.’

³ The Agile Alliance (2019a) defines Scrum as ‘… a process framework used to manage product development and other knowledge work’.
• **The Agile practices:** Component activities that belong to a specific method, such as iterative development or daily meetings.

The first three parts (philosophy, values and principles) taken together form the basis of the Agile Manifesto (Appendix 1), which was created in 2001 by a group of software developers who represented various Agile development methods. This chapter presents an opportunity for universities to learn from how other types of organisations have adopted the Agile philosophy, to improve agility and responsivity to change. It does this by setting up the argument, explored in *Chapter 2: Literature review*, that unless practitioners can adopt a mindset and set of behaviours that are congruent with the Agile philosophy, and guided by the Agile principles, there is limited chance of successfully employing an Agile method or practice. This means practitioners cannot simply adopt an Agile method without fully understanding and embracing why they are using it. To help make this argument, this chapter provides the rationale for a feasibility study, conducted at the OU, into how an Agile-aligned way of working can support the production of online learning content.

The feasibility study was designed to determine the extent to which the Agile philosophy could be adopted within an academic context, to enable a transformation of practice that would contribute to an improvement in the agility of the institution. To enable this transformation, this thesis introduces a toolkit to enable practitioners to adopt more flexible and collaborative working practices that align with the philosophy. Drawing on specific learning models, the toolkit will help practitioners to reflect on, assess and adapt their practice to improve both their agility and the agility of the production team.

### 1.2 Background to the research

The lack of agility this research was designed to address is a problem that is likely to affect different HEIs in different ways. For the OU, some aspects of the key drivers for change are more pertinent to the type of institution it is and the students it serves; that is, a distance teaching organisation offering flexible learning opportunities for both part-time and full-time equivalent students across the UK and worldwide. This section introduces the external catalysts for change that resulted in the setup of a large-scale change programme within the University.
1.2.1 Reduced funding

The last decade or so has represented a period of sustained change and uncertainty for HEIs within the UK. For the OU, this was specifically related to operating in the part-time student market (Figure 1). The University was still feeling the impact of the withdrawal of funding for students with equivalent and lower-level qualifications from back in 2008. Two years later, the then Department for Business, Innovation and Skills (BIS) decided to reduce the block grant received by universities in England for undergraduate provision, sparking a rise in tuition fees and increased competition from private companies (Shatock, 2012; McGettigan, 2013, pp.1-2).

The two main drivers behind this funding reform were to ensure financial sustainability across the sector, and to increase the ‘affordability, accessibility and quality of higher education’ (Willetts, 2011, p.17). Institutions were now free to raise their fees to more than £6,000 per year – if there was a commitment to grow the number of students from ‘less privileged parts of society’ (ibid). From 2012, there was an introduction of regulated fees, and fee loans, for many part-time courses which resulted in many providers making the decision to increase their fees (maintenance loans for new part-time students would not appear until a few years later) (Hubble and Bolton, 2019, p.4).
Universities across England were not the only ones affected by political decisions, which added an additional layer of complexity for a four-nations university such as the OU. Although the decline in part-time undergraduate student numbers (the OU’s core market) is greatest in England, numbers across Scotland, Wales and Northern Ireland have also seen some decline. As HEIs compete for a shrinking student market, they must find ways to adapt their operations in order to succeed in this challenging and uncertain world. The reduction in funding in Scotland along with the Scottish Government’s argument for ‘greater flexibility to learning, teaching and access models’ (Scottish Government, 2010; cited in Comrie, 2011, p.251) has already prompted some
institutions to look internally and consider different collaborative models of curriculum design that could achieve this desired flexibility (Comrie, 2011).

1.2.2 Increasing competition

While a reduction in funding for HE was, and still is, a challenge, there were other, non-financial factors that would go on to influence the design of the study presented within this thesis. Not only did 2012 see the introduction of regulated fees and fee loans, it was also proclaimed ‘the year of the MOOC’ (Pappano, 2012; Weller, 2018) due to the increasing popularity of this approach. The potential high number of students that MOOCs could attract appeared to excite people (Flynn, 2013, p.152) and soon (mostly American) education startups were positioning themselves as disruptors of education (Agarwal; cited in Pappano, 2012). Looking back in 2019, one could argue that MOOCs have not quite ignited the transformation of HE the way people thought they would (Hochschulforum Digitalisierung, 2016; cited in Salmon and Asgari, 2019).

Nevertheless, their arrival sparked a worldwide phenomenon that would see the creation of MOOCs from Finland (Vihavainen et al., 2012) to Galileo University in Guatemala City and beyond; the OU was no exception. The draw of reaching a vast number of learners quickly, anytime and anywhere was (and is) strong.

The arrival of MOOCs not only opened opportunities for HEIs to reach a wider audience, it also opened academic dialogue and debate around “innovation” and “disruption” and the capacity of MOOCs to really shake up education as we know it (Flynn, 2013; Watters, 2013; Weller, 2015). However, disruption is not a new concept – it just has not been applied to education before now (Christensen et al., 2015) – and MOOCs are not the only form of perceived disruption in education (see, for example, Artificial Intelligence). Indeed, both terms appear to be ubiquitous in commentaries on the future of the sector. The idea of ‘disruptive innovation’ originated from Harvard Business School professor Clayton Christensen, who coined the widely critiqued term in his book The Innovator’s Dilemma. The Clayton Christensen (2015) website defines ‘disruptive innovation’ as:

‘…a process by which a product or service takes root initially in simple applications at the bottom of the market and then relentlessly moves up market, eventually displacing established competitors.’
Despite the fact that “disruption” appears to be a contentious theory among the wider HE community in that it has been accepted as ‘unassailably true’ (Watters, 2013), disruption as per Christensen’s definition is very rare (Weller, 2015), and the term is used to invoke the concept of innovation in support of whatever is being done (Christensen et al., 2015). What is helpful to understand is, as Powell et al. (2015, p.1) state, it is possible to distinguish those innovations ‘that are incremental and sustaining in nature from those which are disruptive’.

Using Bower and Christensen’s (1995, p.4; cited in Powell et al., 2015, p.2) definitions, a sustaining innovation in education is one that can ‘improve existing, well-tested curriculum delivery models without changing the current ways an institution functions’; whereas a disruptive innovation is one that can ‘develop new business models to exploit the potential of emerging technologies to serve new types of students, or existing students that current provision does not serve well’. However, this type of innovation can ‘present a challenge to an institution’s existing processes, systems, [and] working practices.’

There are, of course, examples of how education practitioners have defined disruption in their own contexts. In their study of the extent to which teaching practices within their institution have been disrupted since the introduction of a Moodle-based virtual learning environment (VLE), Blin and Munro (2008, p.476) define “disruption” as ‘a serious transformation or alteration of the structure of teaching and learning activities taking place in formal education’. Even though they offer differing definitions, both cases argue to the same point: how universities teach – whether face-to-face or online – needs to change to exploit current and future opportunities.

### 1.2.3 New business models

In May 2016, BIS (2016) published their White Paper on teaching excellence, social mobility and student choice. The Paper (p.7) recognises that ‘[t]he higher education landscape has changed fundamentally since the last major legislative reforms of 1992, leaving us with a university system that needs important reform’. This is evidenced in the ‘more recent increase in the diversity of higher education provision’ where students have more choice in how and where they learn; for example, enrolling on MOOCs (Esson and Ertl, 2013). The Paper calls for ‘more competition and informed choice’ as an incentive for HE providers ‘to raise their game’ by offering students ‘a greater choice
of more innovative and better-quality products and services at lower cost’. In other words, institutions need to transform themselves rapidly in order to stay relevant for today’s needs.

Picking up on the theme of flexibility, Universities UK’s (2018, p.14) briefing on the extent of flexible learning across the HE sector indicates that ‘online learning made up 8% of all provision at UK’ HEIs in the year 2016-17. The report suggests ‘the number of UK HEIs offering online provision has increased from 102 in 2010–11 to 117 in 2016–17’, indicating a trend for this type of flexible provision. The briefing also identifies five key drivers for change ‘that will influence development, and delivery, of flexible learning opportunities over the next five years’ (p.19): employer needs, learner expectations, technological change, regulation and increased competition for students.

Innovation is often the lifeblood of businesses and enterprises that need to remain competitive to succeed (for example, tech companies such as Google and Apple). Implicit within this is a strategic focus that is centered on change, and possibly a cultural mindset that enables change to happen, at pace. This is not to say that universities lack a focus on change; indeed, many institutions, including the OU, dedicate time and resource to innovation; the difference is their business models are unlikely to enable change and innovation across the organisation, in their structures and processes. This is perhaps evident in the number of HEIs who have partnered with a commercial entity to produce and offer their MOOCs.

Using the OU as an example, it not only partnered with a commercial entity, it created and launched one. FutureLearn launched in December 2012 and was welcomed by the UK’s government, as David Willetts optimistically declared:

‘FutureLearn has the potential to put the UK at the heart of the technology for learning agenda by revolutionising conventional models of formal education. New online delivery tools will also create incredible opportunities for UK entrepreneurs to reach world markets by harnessing technology and innovation in the field of education.’

(FutureLearn, 2012)

Three years after launching its first courses in 2013, FutureLearn had registered over 3 million learners on 327 courses created in partnership with 87 different universities and specialist organisations (FutureLearn, 2016). One of the reasons why the company has
expanded quite so rapidly could be down to its Agile approach to learning (FutureLearn, 2013), which has enabled the team to ‘get to market quickly’, to attract learners.

1.3 Rationale for the research

The previous section has highlighted the size and complexity of activity taking place across the HE landscape in the UK. A time of significant change is both a blessing and a curse for a researcher, as it provides ample opportunities for conducting research. The challenge is in narrowing it down to a specific focus. This section provides the rationale for the study, grounding it in the OU’s strategic and operational context.

1.3.1 Aligning with strategy

In 2012, a five-year Strategic Plan (OU, 2015) was put in place to focus the University’s attention on the changes within the external political environment in England. The Plan provided a summary of these changes (p.6):

- significantly reduced funding
- increased fees up to £9,000 per annum
- loans for part-time students ‘studying for a qualification and at an intensity of at least 25% of full-time study’
- increasing competition in the sector ‘by making it easier for commercial providers to obtain degree-awarding powers and encouraging the delivery of more higher education provision through further education colleges’
- increasing the competition for research funding.

It also explained that these changes will adversely affect the institution more as it is the only four-nations institution; is predominantly a part-time provider; will ‘lose at least £90 million of government funding overall’; and ‘has historically had a module-based rather than qualification-based offer’ (p.7).

The Plan was updated in 2015 to reflect further developments since its original publication – one of them being new institutional leadership (p.7). Other developments included:

- a decline in the part-time undergraduate and postgraduate markets
- an increasing focus on employability
- the emergence, growth and evolution of OERs and MOOCs.
The University’s serious interest in the potential of MOOCs was already evident with the launch of its subsidiary commercial company, FutureLearn. This does, however, raise a question as to why a separate entity was required, given the OU’s reputation in open and online education. Weller and Anderson (2013, p.58) argue that while FutureLearn played to the University’s strength for online learning at scale, it also offered the path of least resistance, since it did not require wholesale cultural change.

This is not to say that the University did not attempt to disrupt its own practice, to become more responsive and agile. Projects such as Driving Disruptive Innovation (DDI), which allowed for experimentation with direct authoring into an open-source platform, coupled with the former Vice-Chancellor’s desire to build on the institution’s innovative spirit by becoming more outward-looking (Hartley and Horrocks, 2015), suggested that current systems and processes were no longer fit for purpose in the increasingly competitive environment.

Building on the University’s Strategic Plan, the OU launched its Students First: Strategy for growth in July 2016 (OU, 2016). Since then the case for change has been communicated widely inside and outside of the institution (OU, 2017a):

‘For the foreseeable future in England, the University’s ability to benefit from policy changes will depend on our own efforts. That puts a premium on the responsiveness of our business model. We need to be more agile to harness the opportunities as they arise, to maximise the number of students and employers who benefit from life-changing learning, driving skills into UK Plc.’

Fundamentally, in order to deliver its primary purpose – to create educational opportunities and social mobility for ‘all who seek to realise their ambitions and fulfil their potential’ (OU, 2016, p.1) – it needed to rethink what it does, and how it does it.

The Students First Strategy was underpinned by the vision ‘to reach more students with life-changing learning that meets their needs and enriches society’ (p.2). Six strategic objectives were created to drive the University towards achieving this vision (Figure 2).
Together, the strategic objectives were crafted to support the University to:

- Enable more students to achieve a qualification.
- Provide enhanced employability and career progression outcomes for students.
- Enhance our academic excellence.
- Lead in digital innovation.
- Develop a more adaptive organisation and culture.
- Diversify our income and reduce our costs.

(ibid)

Two of these strategic objectives provided additional support for the need to improve agility: Adaptive Organisation and Culture, and Leadership in Digital Innovation.

**Adaptive Organisation and Culture**

The Strategy (OU, 2016, p.7) stated that the aim of this objective was to ensure:

‘…our people are focused on delivering the best for and with our students. We will work with our staff to put in place all that is needed to support a high-performance culture; supporting them to develop the skills they need and
investing in processes and systems which enable us to deliver flexibly and meet the needs of our students’.

To achieve this the University sought to: invest in staff, ‘with an expectation that they will proactively seek to develop themselves, including … change capability’ and ‘foster a culture in which staff are engaged with, and responsive to, the external environment … with the agility to move quickly and flexibly to pursue new opportunities’ (ibid).

This is significant as it demonstrates how the need to change, to become responsive and agile, had become an explicit part of the University’s strategic context.

**Leadership in Digital Innovation**

Similarly, the Strategy (p.6) stated that the aim of this objective was to ensure the OU leads in the development and use of digital technologies in a) teaching and learning; b) research and c) how we go about our work. The University sought to achieve this, in part, by enhancing ‘work practices suitable for working in a digital world’ (ibid). Again, this demonstrates a commitment to reconsider how the University operates.

**Students First Transformation programme**

As part of the strategic agenda, a “redesign” project was established in late 2016 to re-examine the University’s operating model and ensure its sustainability for the future (OU, 2017b). Following an in-depth analysis, a redesigned model and high-level implementation plan were developed. Implementation would take place in the form of a single delivery vehicle: the Students First Transformation programme. This initiative was tasked with implementing the Students First Strategy as well as the new operating model. The Transformation presented change on the largest scale ever seen by the University. It had the potential to impact on every dimension of the institution – systems, process, people and culture.

Operationally, the Transformation was structured into 12 separate workstreams; eight of which are classed as “functional” and four “enabling” (Figure 3):
Each workstream was comprised of a dedicated team and a set of objectives and targets. Two workstreams in particular - People & Organisational Change, and Teaching Excellence & Innovation – provided additional operational lenses to the problem: developing the capability of the University to lead and deliver transformational change by creating a culture and environment which enables people to lead, adapt and be engaged in delivering the future vision for the OU (OU, 2017c); and supporting people and culture change across the whole University through identification of new ways of working and delivery of professional development requirements (OU, 2017d).

To achieve these desired outcomes, the University had to face several challenges in order to achieve change, namely changing professional practices that had become entrenched in almost 50 years of culture and changing processes and technology systems – and all at the same time. Cultural, procedural and system change are all interdependent, and it was unlikely that this scale of change would be achieved quickly. There was, however, scope to carve a space in which small change could be achieved, to contribute to the overarching plan for achieving organisational agility.

With its implications for practice, the research could be positioned as the “glue” between strategic and operational aims (Figure 4), producing complementary and integrated outputs that could have been used to help drive fulfilment of the Students First Strategy.
Figure 4: Research alignment with strategic and operational aims (source: author’s own)

An example of O’Leary and Hunt’s (2016, p.2) argument that workplace research is highly ‘political’ and conducted in an uncontrolled environment of ‘real-world complexity’ came into play in spring 2018, when a series of incidents, including the resignation of the Vice-Chancellor (Guardian, 2018), resulted in the “pause” of the Transformation programme. An internal review of activity was held and concluded that some elements should continue as “business as usual” while others would cease to be implemented. Of consequence to the study was the decision to stop activity within the Teaching Excellence & Innovation workstream.

In March 2019, the University’s strategic objectives were refreshed to consider the findings of the internal review. Rather than a new strategy altogether, the “refresh” presented an opportunity to realign the priorities for the organisation (Figure 5) and can be viewed as an evolution of the original Students First Strategy.
While it is not as explicitly defined as per the original, a commitment ‘to continuously improve the design and delivery of our learning and teaching to enhance student satisfaction’ (OU, 2019a, p.11) remains, suggesting how to be agile, adaptable and responsive within online learning content production is still a relevant and timely topic of research. By aligning the research with strategy, it is hoped that this will garner management support and commitment for the implementation of subsequent outputs (O’Reilly et al., 2018). The aim of the study is not to provide the answers to all problems; instead, it hopes to produce new knowledge that can contribute towards problem-solving (O’Leary and Hunt, 2016, p.3).

1.3.2 Learning from Agile

The need to change, to become more adaptive and agile, is not unique to HE. Other contexts, such as manufacturing, software development, and digital enterprise, have needed to change their practices to remain efficient and innovative. There will be many solutions that organisations have implemented to enable them to increase their agility; this research focuses on one in particular: the Agile philosophy.

While best known for its application within software development, the 11th State of Agile™ Survey (VersionOne, 2017, p.2) indicates that the number of non-software...
companies using Agile grew significantly in 2016; 3% of respondents stated they worked in “Education” (p.6). Using the OU as a test case, this research sought to determine how the Agile philosophy can be implemented in the production of online learning content, to shape and support a transformation in professional practice that can, in turn, increase the agility of a university.

Chapter 2: Literature review shares examples of other academic institutions considering “Agile”; for example, Willeke (2011, p.246) found that agile tools not only increased productivity and improved motivation, they also allowed curriculum designers to produce ‘better quality and cutting-edge courses in less time’. The NMC Horizon Report: 2014 Higher Education Edition (Johnson et al. 2014, p.16) includes an article on ‘Agile Approaches to Change’ which discusses ‘a growing consensus among many higher education thought leaders that institutional leadership and curricula could benefit from agile start-up models’.

1.3.3 Reimagining production

Following its establishment in 1969, the OU does not shy away from its claim to be a world leader in part-time distance learning. The high quality of its learning content, developed using its supported open learning pedagogical model, is something it is proud to share, claiming that ‘[t]his model has helped to build the University's reputation for innovation, rigour and quality and has been adopted by distance teaching institutions worldwide’ (OU, 2019b).

Often described as ‘the university of second chances’ (Hutton, 2018), the challenges highlighted in the preceding section impacted the institution hard. However, the challenges take on a different light when applied to an institution that has a heavy focus on content production. The drop in part-time undergraduate students brought about by increased fees provided a catalyst for change that resulted in a call for innovation in pedagogy, technology, products and processes (Horrocks, 2015). The challenge for the OU was how to maintain the high quality of learning content provision while reducing the costs and time associated with its production.

The concept of “production” has deep roots in the culture and history of the University. For most of its existence, the University has adopted, and adapted, a production model primarily based around producing print materials; that is, textbooks (Bates, 1995; cited
in Weller and Anderson, 2013, p.58). Book production is costly in both time and money, and it can be argued that keeping the current production model is no longer sustainable. This was evident in the University’s Learning and Teaching Strategy (OU, 2012, p.1):

‘We do know that the substantial reduction in Government spending will significantly affect the University’s future markets and offerings. The OU may thrive in this new market by continuing to deliver its core business, a high quality, lower cost, more flexible student learning experience. But to continue to do this will require increased efficiency and responsiveness in the processes of designing, developing and delivering an enhanced learning experience’.

The need to balance a high-quality student experience with increased efficiency and responsiveness altered fundamentally the focus of the OU, as it continues to recover from falling student numbers. It also prompted it to reconsider its position in a changing market, and to look internally at its services, processes, people, governance, systems and assets – its overall business model.

The consequence of a complex, slow and expensive production system was courses that would run for 8-10 years, with limited maintenance. To address the need for agility, this study aims to help the University explore an alternative, timely way to produce courses, to better meet the needs of its students. It does this by considering the extent to which a methodology that results in a faster production cycle (Willeke, 2011) – Agile – can be adopted within a university production environment.

The desire for “rapid” production and delivery is not new. Instructional design models used in HE, such as the five-phased framework ADDIE and Dick & Carey’s Instructional Design Model, have existed for decades. With a changing market, there is now a need to revisit these models, to ensure they remain fit for purpose today as they did then (Bertram, 2014), or to determine whether there is a need for something new. This research study explores how practitioners in content production can transform their craft, by encouraging reflective practice that is informed by the Agile philosophy:

‘Claiming success for an educational intervention is a tricky business. If success means being certain that an intervention caused learning, then we need to look carefully at the intervention in a particular setting.’

(Design Based Research Collective, 2003, p.5)

With the increased emphasis, both inside and outside of the University, on digital education, this research examines the production of online learning content, rather than
printed content, such as textbooks. The development of a VLE provided an opportunity for the University to experiment with digital components of the learning experience, such as new forms of assessment and tools to facilitate communication and collaboration. Although the number of fully (or partially) online courses has increased over time, production remains underpinned by the original print-based model - from “legacy” technical systems still in use, to the “publishing house” language used to describe parts of the process. The result of this is a complex, rigid production process that does not address the need for efficiency and speed – such as that afforded by processes to develop MOOCs.

Outside of the University, the concept of “production” is likely to be of less relevance; for example, in traditional face-to-face universities where there is less reliance on the production of learning materials than on the delivery of lectures. It is worth noting that as these traditional universities begin to experiment more in the online environment, there is likely to be a reimagining of “production” taking place; that is, institutions will be crafting processes for online learning content from a blank slate, with no historical and cultural baggage of a print-based methodology. This is perhaps evident in the increasing number of universities choosing to partner with FutureLearn, to co-develop their online courses. The challenge for them in doing so is making the shift from face-to-face teaching to that of teaching online.

Through an examination of ways of working in other contexts and an exploration of how the Agile philosophy could be adopted within the production of online learning content, using the OU as a test case, the research offers a toolkit that can assist practitioners in reflecting on their current practice, identifying areas that already align with Agile as well as those that require change. The toolkit also provides guidance on adopting new ways of working that can improve agility. At an organisational level, the intention behind the toolkit is to help stimulate and/or drive strategic conversations around the adoption of Agile to improve agility, by explaining what Agile is and how it “looks and feels” in practice.

1.4 Overview of the thesis

The thesis is structured as follows:

- **Chapter 1: Context and rationale** provides the background and argument for the study, from both external and internal perspectives.
• Chapter 2: Literature review presents a review of the literature that has informed the design of the research. Literature from the fields of Instructional and Learning Design, software development, innovation and organisational change contribute to a multidisciplinary perspective on the problem under investigation. In particular, the review questions the extent to which the use of Agile is prevalent in HE, and online content production. The chapter reveals the gaps in knowledge and culminates in a set of research objectives and questions.

• Chapter 3: Theory, methodology and methods outlines the theoretical, methodological and analytical approaches that guided the study. Using a pragmatic and flexible framework has enabled a multi-dimensional view of production as well as offered a way to integrate the data. It also explores the researcher’s role in relation to the study and offers an overview of the methodology used to surface and evaluate literature discussed in Chapter 2.

• Chapter 4: Data analysis uses Activity Theory to present an analysis of the data generated from the multiple methods used across both the pilot and main studies and determines the extent to which they address the research questions.

• Chapter 5: Findings and discussion discusses the meaning, significance and relevance of the findings derived from the data presented in Chapter 4, for the research and the body of knowledge on Agile in HE. It also discusses how the data and findings have contributed to the development and redevelopment of the Agile toolkit.

• Chapter 6: Conclusions and recommendations represents a conclusion of the research, indicating the implications for professional practice and theory. It also makes recommendations on further development and use of the Agile toolkit and makes recommendations for future research. Finally, it shares a reflection from the researcher on becoming a researching professional in an uncertain and changeable environment.

1.5 Conclusion

This chapter has explored the external and internal drivers for a transformation in professional practice in the production of online learning content. It has shared aspects of the political, strategic and operational contexts that resulted in the identification of a
need for change within the OU and other HEIs. To help address the need for adaptive, responsive and agile organisations capable of overcoming new challenges, this chapter has provided a rationale for a study that explores the extent to which the Agile philosophy, and the principles that underpin it, employed successfully within the software development industry to drive change and innovation, could be one possible solution. This exploration is supported by the development of an Agile toolkit that can enable practitioners to assess their own practice, to identify areas for alignment with Agile that can improve agility.

The next chapter will locate the study within the wider body of knowledge through a review of the literature.
Chapter 2. Literature review

2.1 About this chapter

The previous chapter set the scene for the thesis by presenting the context and the political, strategic and operational drivers for change. It explored the “problem” of universities’ inability to adapt to change quickly, in comparison with smaller, leaner start-up-style education providers, such as FutureLearn. Whereas the focus of the previous chapter was on the real-world context for the thesis, the purpose of this chapter is to locate the focus of the research - the use of Agile to support the production of online learning content - within the existing body of literature, to reveal the gaps and limitations in knowledge. These gaps and limitations are articulated as research objectives and questions that have guided the design of the study.

2.1.1 About the review

The preliminary literature search conducted in 2016 yielded few results on the use of Agile in HE, especially in relation to the production of online learning content. In providing background and context to the research, Chapter 1: Context and rationale also offers broader themes to structure and support the literature review: innovation, as illustrated by the arrival of MOOCs (see Section 1.2.2) and emerging business models (see Section 1.2.3), and organisational change and culture (see Section 1.3.1). Given the scarcity of peer-reviewed publications related to the research focus, using these themes to frame the review helps to position Agile within a wider academic body of knowledge; that is, positioning Agile as an “innovation” that stimulates change from both organisational and cultural perspectives.

Where there was relevant literature, the focus was on methods (for example, Uikey and Suman, 2016), leaving few that focus on the Agile principles or philosophy (for example, Waldron, 2017). The most common Agile methods covered were Lean and Scrum. Most results were from the United States (US), which is perhaps unsurprising as Agile is largely a US-grown concept and more mature in this context. Therefore, the review spans a mixture of peer-reviewed papers supplemented with conference proceedings and trade publications. Whatever their provenance, the literature does offer insights relating to the focus of the research in terms of problem definition and methodological approaches.

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The literature reviewed does not relate to each principle of Agile; for example, the importance of user involvement throughout the development process. Although there is a potential alignment between the focus within Agile on collaboration with the user and the current trend for student involvement in the design of curriculum (Healey et al., 2014), this area of focus exceeded the scope of this study. To review literature in relation to each of the twelve principles would have also been unmanageable within the time available. Prioritisation of the principles concerning collaboration, embracing change and team working that mirror perceived issues in production has helped to refine literature searches.

The Meriam Library’s (2018) CRAAP Test was used as the basis of the critique. Articles and papers were assessed for their currency, relevance, authority, accuracy and purpose, as well as for what they can add to the study. Examples of the critical approach taken have been included to illustrate how the CRAAP Test was applied (see Sections 2.2.1 and 2.3.1). Where it provides insight for the research design, some of the methodological experience from the literature has also been surfaced in this chapter. The methodology for surfacing and evaluating literature can be found in Chapter 3: Theory, methodology and methods and Appendix 2. An extract of the literature search record can be found in Appendix 3.

The review presented here is by no means conclusive but helps to illustrate what is known and not known about the topic of improving agility in the production of online learning content in HE. Overall, it supports the case for research that enables universities, and other educational organisations, to reconsider their professional practice in this area, helping them to increase their agility and resilience in times of prolonged social, political and environmental uncertainty.

### 2.2 The emergence of Agile

Many Agile practices find their roots in early twentieth century manufacturing, such as Lean (Balzer et al., 2016, p.442), while others emerged from the software and product development context in the late 1980s, such as Scrum (Schwaber and Sutherland, 2016, p.3). The Agile Alliance (2019a) defines Scrum as:

‘… a process framework used to manage product development and other knowledge work. Scrum is empirical in that it provides a means for teams to
establish a hypothesis of how they think something works, try it out, reflect on the experience, and make the appropriate adjustments.’

All Agile methods are based on a philosophy or ethos that share similar characteristics, such as iterative development and continuous delivery. It was not until the turn of the century that the family of Agile methods was formally brought together under the Agile Software Development Manifesto (Agilemanifesto.org, 2001a). To some extent the Agile philosophy has become synonymous with the Agile Manifesto; indeed, this was the point when the term “Agile” was first introduced (DSDM Consortium, 2015, p.12).

In February 2001, 17 representatives of the various Agile methods met in Utah, America ‘to find common ground’ (Agilemanifesto.org, 2001a) and ‘to find more effective development methods’ (Hohl et al., 2018, p.11) than the restrictive, time-consuming and costly ones they were used to. The result of the meeting was symbolic in the form of a Manifesto signed by all participants – the Agile Alliance. The values and principles that underpin the Manifesto are derived from sentiments shared by the group:

‘We are uncovering better ways of developing software by doing it and helping others do it. We value:

- Individuals and interactions over processes and tools.
- Working software over comprehensive documentation.
- Customer collaboration over contract negotiation.
- Responding to change over following a plan.’

(Agilemanifesto.org, 2001a)

Each value has a form: the first part indicates a preference whereas the last part, while important, is a lesser priority (Fowler and Highsmith, 2001). In addition to these values, there are 12 principles that guide the implementation of the Agile philosophy:

1. ‘Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

4. Business people and developers must work together daily throughout the project.

5. Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.

6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

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7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity - the art of maximizing the amount of work not done - is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.’

(Agilemanifesto.org, 2001b)

Fowler and Highsmith (2001) argue that while a set of common purposes and principles will benefit the users of Agile methodologies, a variety and diversity of practices are still necessary. They believe that each project and project team are different – there is no one-size-fits-all solution. ‘Agility is all about trusting in one’s ability to respond to unpredictable events more than trusting in one’s ability to plan ahead for them’. This is noteworthy for the research study in two ways: first, it signals a consideration of the diversity of approaches to producing online learning content (Willeke, 2011; Yocum, 2015; Winckler de Bettio et al., 2013), to develop an approach that is applicable to a variety of educational contexts (Boyle et al., 2006); and second, it suggests “traditional” models are inflexible (Willeke, 2011; BIS, 2016) as they tend to follow a linear, sequential process that demands most design and planning up front (Sweeney and Cifuentes, 2010), therefore limiting the ability to respond to unpredictable events.

2.2.1 Agile principles

Evolution of the philosophy

Hohl et al. (2018) focus on the evolving understanding of the Agile Manifesto’s underlying principles, and how this can influence the application of them. Driven by witnessing a trend of ‘doing agile for the sake of doing agile’ (p.3), they conducted a study with some of the originators of the Agile Manifesto, to elicit their views on its application and development 17 years after its creation.

The notion of “doing agile” presents a lesson for the positioning of the research study, as it could be easy to fall into the trap of thinking ‘agile ways of working promise to make companies future-proof” (Lockard and Cleff, 2016; cited in Hohl et al., 2018, p.2). The paper also carries a warning that ‘old paradigms hinder an agile approach and the
agile transformation’ (p.16), meaning that significant change is needed rather than adopting some “out-of-the-box” concepts. To heed this warning, the research needs to ensure it not only provides a balanced view on Agile, to offer it as one solution to the problem under investigation, and not as a ‘silver bullet’ (p.23) that will fix everything; it also needs a way of bringing about a change in practice (see Section 2.4).

The reflective article is both timely and relevant in the sense that it focuses on the original intentions behind the Manifesto and tracks how it has been interpreted and implemented over time. Taking a critical stance, its authority can be evidenced as the inclusion of viewpoints from several originators via an online survey, interviews, and a workshop. A large section of the paper (pp.9-10) is dedicated to detailing threats to validity, with descriptions against four commonly used criteria: construct, internal, external and conclusion validity. In relation to reliability the authors state they took steps to minimise errors and biases and are open to factors that may affect reliability including recall bias, defined as ‘systematic error due to differences in accuracy or completeness of recall to memory of past events or experiences’ (Porta et al., 2014, p.24; cited in Hohl et al., 2018, p.10). Given that it was 17 years ago, the authors ‘tried to avoid the “halo effect” (Porta et al., 2014), which would influence the interpretation of the findings by the previously gained knowledge’ (Hohl et al., 2018, p.10). The paper is both historical and future-facing, with most members of the originating group declaring that they ‘thought that their manifesto would not be as successful as it has become’ (p.15).

**Principles and practice**

As well as indicating the affordances of an agile framework for innovation, Highsmith (2009) conveys the importance of action that is driven by principles and belief; he promotes the idea of a ‘system of practices’ that:

‘…reinforce each other as they align with agile principles. But they do more than align; they implement. Principles without practices are empty shells, whereas practices without principles tend to be implemented by rote, without judgment. Without principles, we don’t know how to implement practices […] Principles guide practices. Practices instantiate principles. They go hand in hand.’

This symbiotic notion of principles and practices is key for the study as it offers a warning for focusing on one without the other; that is, by focusing on methods and practices, practitioners will not gain an understanding of why they are implementing
them. Without this understanding, the ability to critique and continuously improve professional practice is limited.

The notion of “abstract principles” forms part of the analysis of the field of Agile software development methods conducted by Abrahamsson et al. (2003). Through an assessment of the adaptability of different methods for other purposes, they found that five of the nine methods analysed ‘place emphasis on abstract principles over concrete guidance’; that is, there is nothing to guide and support how the ‘practices, activities and work products’ are carried out, rendering the principles ‘useless’. This builds on Highsmith’s (2009) argument that there is a purposeful relationship between both principles and practice that should not be ignored. To bring this back to the focus of this research study; that is, supporting agility in the production of online learning content, it is necessary to consider the relationship between principles and practice, but also what helps to guide and support the implementation of them.

**Principles and change**

As well as a relationship with practices, principles also have a relationship with change. In 2018, the LEGO Group launched an Agile transformation, which included a new digital operating model. Sommer (2019) explains how the integration of principles and process helped to change behaviour and cultivate an “Agile” mindset. Picking up on the theme of scaling Agile across an organisation, she claims that to create ‘a fully Agile organization requires integrating the principles of Agile in every element of the company’ (p.21).

Although a framework is offered to guide the transformation, she argues that this is not enough to bring about a successful outcome - a Change Management approach that aligns with the Agile values and principles is also needed (*ibid*). Discounting directive ‘top-down’ and non-strategic ‘bottom-up’ approaches, Sommer (2019, p.22) offers an alternative that ‘is congruent with Agile principles, empowering employees to make decisions and cocreate change’: open-source change theory. This is an approach that ‘uses the workforce to plan and implement change. Staff not only execute the change but also influence and improve it’ (CEB, 2016, p.7). From this perspective, developing a toolkit offers a means for practitioners to own and implement change in the production of online learning content.
The Agile transformation at LEGO was years in the making, with clear buy-in from the CEO:

‘This move to a product oriented, Agile setup is the trend seen across the technology industry as digitalization of businesses gathers pace. Digitalization is creating a completely new paradigm in business, where the pace of technology change has increased dramatically, the landscape is much more volatile as new digital concepts come and go, and there is an increasingly blurred technology responsibility. These factors offer IT—as the primary technology enabler—unprecedented opportunities to create value by becoming an agile change agent to accelerate the rest of the LEGO Group on the digital journey.’

(p.25)

This communication of intent offers parallels with the role of technology and digitisation in HE, as more universities and education organisations provide online learning, and reinforces the need for improved agility and responsiveness. Whereas an organisation-wide Agile transformation is out of scope for this research study, the notion of online production teams as “agile change agents” to drive wider change helps to frame this research as the start of what could be a long change journey for HEIs.

While Agile principles have been successfully embedded in the ways of working of some teams at LEGO, such as delivering value to customers, faster (p.27), other teams:

‘[…] have been tempted to blindly follow a specific Agile method—in many cases Scrum—without a corresponding change in the fundamental principles or way of working. Suddenly everything becomes about sprints, backlogs, and demos. These teams end up doing Agile without ever being Agile.’

(p.28)

This signifies and expands on the importance of embedding the Agile principles into ways of working, to ensure teams understand why they are working in that way and not just how (Highsmith, 2009; Hohl et al., 2018).

**Principles and education**

Taking a principle-based approach is not a new idea in education, particularly in the field of Instructional Design (Gagné, 1997; Merrill, 2002) and the application of Instructional Design to different forms of learning, such as mobile learning (Elias, 2011; Kukulsk-Hulme and Traxler, 2019). Finding its roots in cognitive and behavioural psychology, Instructional Design can be defined as the application of scientific principles about how people learn to the production of teaching materials (Arimoto et al., 2015). A Professor in the Department of Instructional Technology at Utah State
University, M. David Merrill (2002, p.58) offers ‘a survey of instructional theories and models’ to show ‘that these theories do include first principles of instruction that are similar, regardless of theory or philosophical orientation’. He identifies his first principles of instruction based on Reigeluth’s (1999; cited in Merrill, 2002, p.43) categorisation ‘of two major kinds of instructional methods: basic methods [principles] and variable methods [practices]’. The first principles are:

1. ‘Learning is promoted when learners are engaged in solving real-world problems.
2. Learning is promoted when existing knowledge is activated as a foundation for new knowledge.
3. Learning is promoted when new knowledge is demonstrated to the learner.
4. Learning is promoted when new knowledge is applied by the learner.
5. Learning is promoted when new knowledge is integrated into the learner’s world.’

(pp.44-45)

A principle, as per Merrill’s (2002, p.43) definition, is ‘a relationship that is always true under appropriate conditions regardless of program or practice’. A practice is a specific instructional activity. He suggests ‘[p]ractices always implement or fail to implement underlying principles whether these principles are specified or not’. As well as corroborating the need to relate both principles and practices, Merrill (2002) offers two insights for this study:

- the application of principles and practices for the design of learning can be viewed as a parallel to the application of Agile principles and practices for the production of learning content.
- Merrill’s “first” first principle connects with the wider context surrounding this research. Referring to Chapter 1: Context and rationale, there are several “big issues” that require learners to be engaged in solving real-world problems.

The ability to solve real-world problems is likely to require different or new skills, and this could be an argument for new models of production that not only address this skill gap sooner, but also align themselves with the Instructional Design canon. This argument is strengthened when considering the history of the design field and the resultant production processes that were developed at a time when courses could be
expected to have a lifetime of a decade. Today, knowledge is increasingly accessible and ever-changing, and this requires new, faster and more efficient ways of producing and updating content (Irlbeck et al., 2006; Yocum, 2015). As such, there is a question as to whether these processes remain suitable for producing online learning content that is required by today’s and tomorrow’s students (Yocum, 2015).

The literature indicates a wider application of Instructional Design and the principles that underpin it. This is illustrated by an argument that ‘[Universal Instructional Design] principles developed for other forms of learning can also be helpful in designing inclusive m-learning applications’ (Elias, 2011, p.145). Building on an earlier translation of UID principles to online distance education (Elias, 2010; cited in Elias, 2011, p.147), the author extends their translation to mobile learning (p.148), arguing the ‘relevance of almost all of these principles for designing inclusive online learning is further increased when designing inclusive m-learning’ (p.147). The argument for a wider application of principles developed within one setting is further supported by Kukulska-Hulme and Traxler (2019). While neither paper explains how these principles have been applied in practice, they are still relevant to the research as they support the argument for the ability of principles created within a software development context to help support the production of online learning content.

2.2.2 Agile and innovation

The ability to “get to market quickly” is arguably a key driver for innovation in many organisations offering products to consumers (Highsmith, 2019; Sommer, 2019), including universities providing services to students (Hartley and Horrocks, 2015; Horrocks, 2015). But it is not a new challenge (Stacey, 1993; Handy, 1999) and if the product is not what the consumer - or learner - needs, it does not matter how fast it falls into their hands. Focusing on the need for flexible (and faster) Project Management, to better respond to the needs of customers, Highsmith (2009) argues that ‘companies have to deliver better products geared to what customers want at the time of shipment’.

Creating the right product at the right time is what results in a ‘tremendous competitive advantage’. One of the key tenets of Agile is not only delivering what the customer wants but delivering a quality product to them fast (ibid). This was one of the motivations for a way of working within software development that is streamlined, less bureaucratic and allows developers to get on with the job in hand.
In his explanation of the role of Agile Project Management in developing innovative products, Highsmith (2009) signals ‘a new approach to management in general and project management in particular’, and offers ‘five key business objectives’ for such an approach:

- **Continuous innovation** as ‘innovative ideas aren’t generated in structured, authoritarian environments but in an adaptive culture based on the principles of self-organization and self-discipline’.
- **Product adaptability** as ‘technical excellence is measured by both capacity to deliver customer value today and create an adaptable product for tomorrow’.
- **Improved time-to-market** through iterative development, streamlining and removing waste from the process, and making sure the team has the right skills and is productive.
- **People and process adaptability** through ‘learning and adapting’.
- **Reliable results** through the delivery of ‘a valuable result—a releasable product that meets customer goals and business requirements as they become known’.

In terms of “reliable results”, Highsmith (2009) surfaces something of relevance to production practice, particularly that conducted at the OU:

‘Production processes are designed to be repeatable, to deliver the same result time after time after time. Good production processes deliver the anticipated result, for a standard cost, within a given time—they are predictable. Exploration processes are different. Because of the uncertainty surrounding requirements and new technology, exploration projects can’t deliver a known, completely pre-specified result…’

In an institution with a well-defined and repetitive production process, innovation will always be limited, unless a new approach is adopted that embraces change and uncertainty. The introduction of such an approach in an organisation with many mature processes will require not only an overhaul of production practice, but also in the processes surrounding it, such as how performance can be measured.

Using Highsmith’s (2009) description of the difference between a process that is repeatable – ‘doing the same thing in the same way produces the same results’ - and one that is reliable – delivering ‘regardless of the impediments thrown in the way’ by ‘constantly adapting to meet a goal’, it is possible to position the OU in the “repeatable” camp due to its ingrained use of production specification templates. These processes ‘rely on minimal variations in both the process and the specification’. In a time of
increasing uncertainty and change, in which HE finds itself, there is a need for adopting an exploratory, agile approach to producing online learning content to respond to the changing needs of students.

A ‘static, prescriptive’ process framework has its place, as Highsmith (2009) explains – but not in innovation, which requires a framework that is ‘organic, flexible and easy to adapt’. This points to a potential underlying behavioural and cultural barrier for increasing agility with Agile: ‘managers who have been successful in stable environments attempt to apply the same processes and performance measures to unstable environments’, which often results in project failure. Implementing Agile is not just about following the instructions of a method, it is also about developing a mindset that is open and responsive to change (Sommer, 2019, p.20) and experimentation with new ways of working.

The previous chapter introduced one “disruptive” innovation in education: FutureLearn. However, there are many other examples of new, innovative business models outside of HE that could bring insight to this research. Launched in 2008, the digital media-streaming service, Spotify, is an example of a new breed of agile organisation that promotes ‘innovation, collaboration, and autonomy with bottom up governance’ (Smite et al., 2019, p.51). A study conducted at the company in 2019 aimed to understand the challenges of Agile development at scale and across geographical distances. It found that multiple types of Communities of Practice – or ‘guilds’ in Spotify terms - ‘play an important role in scaling agile as a bottom up function, enabling knowledge sharing, allowing joint code ownership, and developing new and aligning current development practice across many teams and sites’ (p.55). This is also evident in education design contexts, where “[d]esigning in teams provides the opportunities for sharing ideas, building networks and crucially the dialogue that is a necessary element of both professional learning and institutional change’ (Falconer et al. 2007; Dempster, Benfield and Francis 2012; cited in Sharpe and Armellini, 2019, p.144).

The study recommended investing in this type of learning forum ‘for their potential to result in knowledge-based alliances that speed up problem-solving and strengthen professional identity’ (p.56) and for ‘tackling the knowledge fragmentation challenges when scaling’ (p.57). In relation to this research study, the Spotify example highlights the importance of knowledge sharing and community in relation to the implementation
and growth of Agile; that is, creating “space” for online learning content practitioners to not only identify and share good practice, but to also disseminate it more widely.

### 2.2.3 Agile implementation

Findings from a case study of a multinational organisation that adopted the Dynamic System Development Method (DSDM) highlight challenges to implementing Agile across an organisation (Plonka et al., 2014). The Agile Business Consortium Ltd (2019a) defines DSDM as:

> ‘…an Agile method that focuses on the full project lifecycle […] DSDM’s success is due to the philosophy “that any project must be aligned to clearly defined strategic goals and focus upon early delivery of real benefits to the business.”’

Drawing on the published literature, Plonka et al. (2014, p.2) suggest challenges can occur when Agile methods are adopted through a gradual transition process:

> ‘Using agile in a non-agile environment can be challenging. There are many reasons why this situation occurs, a common one is that agile is often adopted through a gradual transition process and during transition it has to exist within a non-agile environment. Transitioning requires changing processes, working practices, and the culture of the organisation. Agile transitions often start bottom up at the development team level and the biggest challenge is a corresponding organisational adjustment.’

The authors suggest that Agile may work well at a team level, but challenges occur through interactions with the wider organisation; for example, where the existing governance does not support quick decision-making processes. This sentiment is shared by Brown (2014, p.213) who argues that change is best achieved at an organisational level but suggests ‘“submarine” approaches can shield change projects from resistance’.

The challenges and issues of Agile implementation are also reflected in an account of Striebeck (2006) on the time he joined Google to manage development of a new business-to-business feature. He describes how he introduced Agile practices to coordinate product development. Given that a ‘big part of Google culture is trust’ (p.2), Striebeck (2006, p.3) shares how he gained buy-in from engineers to work in a different way. Understanding the culture of the organisation and how it operates enabled him to identify areas that would benefit from Agile practices: ‘[the] pre-development process is very well established at Google and it seemed too complicated to make this part more agile’. Nevertheless, there were issues to overcome when implementing these practices.
Many Agile methods include the role of “product owner”. However, Striebeck (2006, p.3) argues that at Google, ‘these responsibilities rest with the team leads. The product managers usually have more than 10 projects at the same time. This does not give them the bandwidth that the product owner role requires’. How decisions were made, and who made them, was something that had to be adapted. Another issue was the team’s familiarity with the concept of a “retrospective” – time and space to reflect on and then improve the process:

‘But both teams were not (yet) used to having a formal development process. The weekly retrospectives usually turned into a status report from the last week but very little about the process itself. This was aggravated by the engineering centric culture at Google. When an issue comes up, most engineers at Google only consider technology to fix it.’

(p.4)

Striebeck (2006, p.4) made the decision to remove the practice until the team were able to ‘own’ and therefore ‘change’ and improve it. The third issue encountered was scope creep, which led to delays in releasing the product. Although the delay occurred, through increasing visibility and communication, the team knew about it earlier enough to understand what needed to be done and when. The fourth issue experienced was working with a remote team and how they would perceive being managed from headquarters. He explains that this was mitigated by making himself ‘very useful’ and providing just the right level of support, such as increasing visibility and facilitating meetings and communication between colleagues in different locations (ibid).

To support the implementation of an Agile development process in Google, Striebeck (2006, p.4) recommends increasing agility one Agile practice at a time. For example, ‘project teams initially rejected the idea of daily standup meetings. They were seen as an unnecessary overhead’. However, the team soon discovered issues that ‘could have been avoided had the team communicated earlier’. This realisation persuaded the team to ‘try out’ daily standup meetings, which, after a couple of weeks, became part of their routine practice. Still, he acknowledges that:

‘The first standup meetings were quite lengthy. Everybody had a lot to talk about and had problems to focus just on a quick status update (“done”, “to-do”, and “issues”). But after a few days nobody had a big baggage anymore and everybody realized that there is not much to talk if you restrict yourself to the past 12 hours and next 12 hours.’

(ibid)
Striebeck’s (2006, p.8) account is useful for the research in that he recommends not ‘introducing a grand new process’, but, instead, ‘individual practices could be introduced either to fix observed issues or just to “try them out”’. This idea of flexibility is something to be considered in the development of the Agile toolkit.

2.3 Agile in Higher Education

In surveying the publication landscape before and after the creation of the Manifesto in 2001, Hohl *et al.* (2018, p.5) signpost numerous literature reviews and studies that suggest an increasing interest in Agile development in a variety of contexts, including education. Some studies even go so far as to create an “Agile Manifesto” for education (Kamat, 2012). Agile methods, such as Lean, have indeed enabled educational institutions to respond to the external demands placed on them (Kamat, 2012; Emiliani, 2015; Balzer *et al.*, 2016), but the challenges, such as an Agile team interacting within the wider non-Agile organisation, highlighted by Plonka *et al.* (2014) and Striebeck (2006), are still experienced.

In a review of the literature on Lean Higher Education (LHE), Balzer *et al.* (2016, p.444) identify that:

‘[a]lthough many institutions have reported progress related to improvement, some have concomitantly described challenges to improvement, such as incorrect understandings of LHE tools and methodologies, aspects of organizational culture […] and a lack of leadership support’.

This suggests there is a way to go in adopting Agile in other contexts, particularly when adopting it “locally” within larger organisations that have an established culture and “way of doing and being”. The lesson to be learnt from Balzer *et al.* (2016) is creating a shared understanding of Agile that is supported and endorsed by leadership is key to its successful implementation. Indeed, the support and buy-in from the CEO was purported as key to the success of the Agile Transformation at LEGO (Sommer, 2019, p.25).

Through the lens of producing online learning content, in addition to the need of HEIs to respond to external demands, the increased use of technology in daily life places a demand on learners themselves to acquire appropriate digital skills. This in turn places a demand on institutions to provide learning that makes best use of the technology available (Abdelaziz, 2012) – and at a pace to keep up with technological advances. An example of a digital educational transformation was the arrival of MOOCs, encountered in Chapter 1: Context and rationale, which had the potential to change how we learn
and teach. MOOCs advocate networked learning (Weller and Anderson, 2013) and skill development through social interaction and it can be argued that this is an example of collaboration with a purpose of building knowledge together (Abdelaziz, 2012). This echoes how the implementation of the Agile principles could also drive collaboration and building a shared understanding in the production of online learning content.

A society that places the responsibility for skill development, in the form of lifelong learning, on the learner poses both an opportunity and a threat to “traditional” education (Weller and Anderson, 2013). The opportunity is in innovative and new forms of teaching and the threat lies in the inflexible nature of traditional education to take advantage of this (Willeke, 2011). The following section explores the existing relationship between Agile and design for learning, and surfaces arguments from the literature for a flexible alternative to traditional models that provides the right learning at the right time.

2.3.1 Agile and design for learning

There are some studies that indicate Agile methods can be integrated with different forms of design for learning, including Instructional Design (Sweeney and Cifuentes, 2010; Willeke, 2011; Yocum, 2015) and Learning Design (Groves et al., 2012; Arimoto et al., 2015; Arimoto et al., 2016). An initial search shows there is a wealth of literature on Instructional Design theory and educational development, which is unsurprising given that it is a practice that was established six decades ago. Research on Learning Design has increased ‘primarily due to the gap between the potential and current use of technology to support teaching and learning’ (Conole, 2013; cited in Arimoto, et al., 2016, p.206). It could be argued that the need driving the increase in research on Learning Design is the same as that underpinning this research: to be able to respond and take timely advantage of opportunities, such as technology, to better serve students.

Sharpe and Armellini (2019) offer a complementary insight on the challenge of universities being able ‘to review and update their curricula ever faster’ (p.135). From the perspective of strategic curriculum change, the authors consider Learning Design at an organisational level; that is, ‘the deployment of learning design frameworks and approaches across an organisation in pursuit of an institutional agenda’ (ibid). The link between strategic change - albeit pedagogical in nature - and design practice offered by Sharpe and Armellini (2019) reflects the relationship between the strategic context of
the OU and production practice (see Section 1.3). This indicates a clear need for responsivity, pace and agility to not only thrive in an increasingly competitive market, but to also keep up with advances in technology and pedagogy.

The argument for change is not new, but there is a question as to why it remains a challenge for universities today. The authors highlight a conclusion by Bain and Zundans-Fraser (2016, p.7; cited in Sharpe and Armellini, 2019, p.136), following a review related to curriculum reform, that universities ‘frequently lack the theoretical frameworks, institutional process, practice and collaborative cultures required to address the profound changes they face.’ While there have been ‘interdisciplinary team-based’ approaches developed to support Learning Design, such as Carpe Diem and Course Design Intensives (p.136), the authors question whether, alone, they are ‘sufficient to achieve strategic curriculum change’ (p.138). This concern could be extended to the development of an Agile toolkit to support production; it may increase collaboration and agility in practice, but the gap between practice and strategy is wide.

The explanations of approaches to Learning Design offered by Sharpe and Armellini (2019) conjure parallels with Agile principles and practices; for example, the ability for decisions to be taken at the appropriate level (p.141), working in cross-functional teams (p.143), conversation (p.144) and collaborating with students (p.145). This not only suggests the practice of Learning Design has evolved along with other disciplines, such as Project Management (Highsmith, 2009), to be more open and responsive to change, it also suggests that there could be an existing level of practice in the production of learning content that is congruent to an Agile way of working.

Related to the creation of OER, Arimoto et al. (2016, p.206) suggest an Agile solution for the flexible and sustainable development of them – AM-OER, which draws on practices offered by Scrum and eXtreme Programming (XP). While this method provides an Agile way of working that focuses on collaboration and improving quality, it also ‘embeds practices of [Learning Design]’ developed at the OU. An experiment in which AM-OER was assessed against another method resulted in empirical evidence that the Agile model was an effective and efficient ‘method in the design and creation of OERs’ (p.231). However, unlike the context of this study, this is often a form of content production that can be “outside” the formal curriculum production process – as it was at the OU - and therefore not subject to established sub-processes, culture and ways of
working. Although tensions arise when these “informal” production processes bump up against those in the rest of the institution (Plonka et al., 2014, p.2).

Despite its lack of academic rigour, Willeke (2011) offers a rich insight into the lived experience of using Agile methods for curriculum design in an academic context. In the form of proceedings for the 2011 Agile Conference, the author discusses the challenges and strategies of applying an Agile methodology in an online education team within an American university. She examines the challenges and strategies of applying Agile methods within an academic environment for the purpose of increasing the productivity, and improving the motivation, of curriculum designers. She describes how two Agile methods were adapted to suit the needs of a team that were distributed across the US: Scrum (see Section 2.2 for a definition) and Kanban. The Agile Alliance (2019b) defines Kanban as:

‘… [a] means to design, manage, and improve flow systems for knowledge work. The method also allows organizations to start with their existing workflow and drive evolutionary change. They can do this by visualizing their flow of work, limit work in progress (WIP) and stop starting and start finishing.’

In the context of Willeke’s (2011) application, Kanban is used to provide a holistic, real-time picture of the course in development, rather than to visualise a specific workflow. The Scrum framework was aligned with Instructional Design: The Director of Online Education became the “product owner” and the Instructional Designer became the “Scrum Master” – two key roles in the method. The biggest adjustment is that the “development team” does not exist in this context. Willeke (2011) argues the needs of the team should drive process, rather than the tool or method used.

From a critical perspective, Willeke’s (2011) research is a purely personal account as the Director of Online Education at Ohio Christian University, Chicago. The author makes generalisations and statements which are supported by little evidence; indeed, Willeke only cites six previous works, one of which is by her husband – an Agile coach. Research methods are not described explicitly, although there is some description of how methods have been used in practice.

The implementation of Scrum also features in Yocum’s (2015, p.ii) PhD thesis, which explored ‘how Agile principles and processes were used by instructional designers to begin to understand how Agile may promote flexibility and creativity of learning
design’ in a corporate eLearning context. The findings from her research indicate that Scrum practices enabled team collaboration, which was believed to contribute to more creative courses. Like Willeke (2011), she identifies herself as an experienced instructional designer but states that she has neither used nor observed Agile methods in an Instructional Design setting.

Methodologically, the literature surfaced also provides insights to shape the design of this research study. The research design employed by Yocum (2015) was largely qualitative, using multiple case studies, surveys, storytelling narration and interviews. In contrast to Balzer et al. (2016), she argues that case study research was most appropriate as it provides the most insight into the lived experiences of participants, and ‘provides more robust data for analysis’ (p.65). Yocum (2015) states that she ensured data accuracy by asking interview participants to check and approve verbatim transcripts. This also helped to reduce bias based on preconceived ideas. However, a limitation of the study was that only five participants made up the sample. This affects the ability to generalise the results to the entire field of Instructional Design. In addition, the study was limited to the use of one specific Agile method – Scrum.

A complementary view to Willeke (2011) on the use of Scrum within a design and development setting is offered by Sweeney and Cifuentes (2010) - albeit with a focus on project and team management. Like Willeke (2011) and Yocum (2015), the research takes place within a US context, but the case study is on the application of Agile Project Management within Instructional Design. The study required seven graduate students to form an Instructional Design team to develop a web-based resource. They were asked to complete the project using the Scrum method as a form of project management. Like Willeke (2011), the authors draw on Agile values and principles as they translate it in practice, however, unlike Willeke (2011), the authors provide a very objective account; that is, they were not participants within the study.

It is possible to deduce that a combination of observation and interview techniques was used to generate findings, even though the research methods used are not stated explicitly in the study conducted by Sweeney and Cifuentes (2010). It is unclear how the students were selected for the study and how frequently they had contact with the researchers. The article is very much a descriptive report rather than an in-depth critique
of the use of Scrum as an Agile Project Management tool; however, it does offer additional insight into the application of Agile principles in education.

2.3.2 Issues with traditional design models for online learning

While there is clearly pedagogical value in traditional design methods, there remains a call for a reimagining of models for producing online learning content (Williams van Rooij, 2010; Irlbeck et al., 2006; Bertram, 2014; Emiliani, 2015). The literature has surfaced possible claims to support this:

Claim: Traditional design models are inflexible

The ADDIE (Analyse, Design, Develop, Implement and Evaluate) model is well-established within Instructional Design, and models based on this approach have become industry-wide approaches to the design and development of curriculum (Willeke, 2011; Groves et al., 2012). However, they are viewed as inflexible and lacking in innovation (BIS, 2016; Groves et al., 2012), and slow to respond to ‘fast changing and productivity of the development process’ (Nguyen et al., 2016, p.974). This sentiment is echoed in Durdu et al.’s (2009, p.230) decision to develop a model that ‘uses the iterative incremental and agile software development approaches in order to overcome the disadvantages of other linear development approaches’, namely time.

Models based on ADDIE assume at the start that all that can be known about the curriculum to be developed is known. However, this is unlikely to be the case in most circumstances. By designing curriculum in detail up front, the method leaves little room for unexpected changing requirements and, should problems arise, it is often too late to do anything about them (Fowler and Highsmith, 2001; Willeke, 2011). This contrasts with Agile which emphasises the need for iterative development, to embrace and build change into the development process. An example of an “evolution” of ADDIE is offered by Groves et al., (2012, p.49) who were prompted to review their Learning Design methodology to meet the needs of corporate learning clients in a more flexible and collaborative way:

‘We have come to view the five phases of ADDIE as both the backbone and the common language of our work. However, ADDIE by itself is not enabling the rapid response that we need now. Although we see no reason to reject ADDIE and any of the benefits it can bring us, we must acknowledge that ADDIE “classic” is no longer enough. We need to be more nimble, flexible, and lean. We need to be more Agile.’

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The authors offer ‘Agile Learning Design’ as the next step for ADDIE which, like Arimoto et al. (2016), draws on a variety of Agile practices to provide a flexible designing experience that can better accommodate change (p.51).

**Claim: Traditional design models have not evolved with pedagogy**

As learning theory has evolved over decades, there is an argument that traditional models have become less effective (Abdelaziz, 2012). There is a need for a design model that can enable innovative and emerging teaching practices (Groves et al., 2012). Emiliani (2015) argues that from an LHE perspective, teaching is the core value-activity; however little has changed with respect to the pedagogical approaches used.

“Lean teaching” is the application of the principles and practices of Lean – an Agile methodology - to teaching with a goal of improving the value of education provision for students, employers and society (ibid). The implication of this is to ascertain what “value” constitutes from multiple user perspectives.

**Claim: Traditional design models have not kept pace with technology**

Technology moves quickly and the design, development and subsequent maintenance of a degree programme has not evolved at the same pace (Hess and Benjamin, 2015). Alternative, flexible and responsive models and approaches that are in-line with the evolving needs of the student would enable designers to take advantage of new tools and technologies and their affordances for learning (Elias, 2011; Groves et al., 2012; Kukulska-Hulme and Traxler, 2019).

**Claim: Traditional design models mirror waterfall project management**

Sweeney and Cifuentes (2010, p.34) highlight ‘striking similarities in the early models of Instructional Design and early models of project management’; for example, the sequential steps of the ADDIE model and waterfall project management, a linear phased approach to delivering projects. This is expanded in the experience of Kamat (2012, p.231) who proclaims their ‘academic programs are rigid and follow [a] waterfall delivery model. They are like fixed cost, fixed time and fixed scope project which throws away the most important forth parameter [:] the quality’. Iterative processes were introduced into Instructional Design much later. However, Sweeney and Cifuentes (2010, p.35) argue these later models still rely on the ‘Big Design Up Front’ principle which leaves little room for responding to change.
Williams van Rooij (2010) suggests there is a gap between theory and practice and argues that instructional designers must possess a ‘sound instructional design knowledge base’ as well as ‘solid project management skills’. Results of a survey of 142 professionals conducted by Cox and Osguthorpe (2003; cited in William van Rooij, 2010) indicate that design professionals spend 47% of their time on instructional design tasks as defined by the ADDIE model. Most of their time spent on non-design tasks is spent on project management.

**Claim: Traditional design models are not collaborative**

Several models focus on managing design steps rather than the instructional design and development process, and any attempt made at a team-based approach borrows heavily from waterfall project management (Sweeney and Cifuentes, 2010; Irlbeck et al., 2006). The result of this is an inflexible disempowered team who are unable to adapt designs. In other words, they cannot be agile. Designing for an online environment calls for a process that makes design and development more effective and efficient (Irlbeck et al., 2006); that is, the design undergoes constant modification through an iterative and collaborative process.

### 2.3.3 Benefits of adopting Agile to produce online learning

The literature has also surfaced several perceived benefits of adopting Agile to support the reimagining of models for producing online learning content:

**Benefit: Developing an Agile culture**

The Agile philosophy is more than a set of rigid rules to follow (Willeke, 2011). It is a way of being (Highsmith, 2009; Hohl et al., 2018; Sommer, 2019). There is an argument that it is the responsibility of an individual to maintain an Agile mindset and attitude towards self-development (implicit in the twelfth principle regarding team reflection on how to become more effective), rather than the responsibility of the culture in which they operate (Willeke, 2011). This mirrors Weller and Anderson’s (2013) earlier point that society places the responsibility for skill development, in the form of lifelong learning, on the learner. If individuals are supported to achieve this, the culture will begin to reflect that mindset.
Benefit: Responding to changing requirements

Accepting uncertainty and ambiguity is a fundamental part of being “agile”. It is not possible to plan projects in detail up front because the planning process is continuous and adaptive. As such mistakes can occur, however rapid iterative development can correct mistakes that arise (Sweeney and Cifuentes, 2011). From a software development perspective, Fowler and Highsmith (2001) argue that the assumption and encouragement of changing requirements means that design cannot be a purely up-front activity to be completed before development begins. They suggest design is a continuous activity performed throughout.

Waldron (2017, p.16) argues ‘working practices which reflect Agile values and principles’ is an advantage in that ‘they help to set up an organisation in an optimum way to respond to change’. Drawing on an example of implementing Agile practices within LexisNexis, he explains that in order to do this it meant ‘having a top down approach, with a major investment from the company involving significant time and commitment to change across the whole organisation’ (p.17).

Benefit: Increasing motivation

Agile methods can help organisations transform their culture and increase motivation, creativity and satisfaction (Willeke, 2011; Yocum, 2015; Sommer, 2019). This can result in better quality and innovative curriculum (Yocum, 2015). There is also an argument that the implementation of Agile methods can reduce the amount of time taken to design and develop online learning. By introducing tools that increase productivity and motivation, designers can find themselves with more time to enhance learning (Willeke, 2011).

Benefit: Encouraging team working

The concept of self-organisation is widely supported as a benefit to practice (Stacey, 1993; Striebeck, 2006; Highsmith, 2009; Emiliani, 2015), and many Agile methods manifest this concept with self-organising teams (Sweeney and Cifuentes, 2010; Agile Alliance, 2019a) and the visibility of task relationships (Willeke, 2011; Agile Alliance, 2019b). This helps to avoid the “silhouette mentality” of working and encourages team working. In an academic setting, where members of a team are often not co-located in the same office, the use of a tool that can help to visualise the progress (such as a
Kanban board) and input of each team member could improve and sustain the motivation of the team.

**Benefit: Improving team organisation**

HE is generally hierarchical (Willeke, 2011) and complex (Philbin, 2015) and, as such, it often employs multiple systems and processes that reinforce the hierarchy and complexity; for example, traditional linear and sequential “waterfall” project management approaches such as PRINCE2. Methodologies like this often favour over-planning and micromanagement which result in an inability to accommodate change and disempowerment (and subsequent demotivation) of staff. Striebeck (2006, p.8) argues that the ‘project manager is dispensable’ following a concern about ‘how the teams would continue with the agile process during my absence and reminders and reinforcements of our agile practices’. However, his concern was unfounded as ‘the teams embraced the process enough to continue it even without any reinforcement’. This suggests a period of “reinforcement” is required before Agile becomes part of everyday practice.

An exploration into whether Agile Project Management can be applied within HEIs, ‘to improve the efficiency and effectiveness of the academic enterprise’ is offered by Philbin (2015, p.1). He argues that by drawing on ‘the need not to adhere to a fixed plan but to adopt a more adaptive and responsive delivery of projects through iterative steps’ (p.2), universities could improve their ability to address the types of challenges explored in Chapter 1: Context and rationale. Focusing primarily on improving ‘performance in the delivery of research, education and knowledge exchange services’ (p.4), a case study on the design and delivery of a new online degree programme (p.5) uses a combination of ‘user stories’ and prioritisation to build requirements and estimate the time and resources needed to complete them (p.6). This study highlights an operational perspective to the implementation of Agile; that is, to reduce time and costs by managing resources more effectively and efficiently.

For teams adopting an Agile method for the first time, it is likely that they will encounter issues with team organisation. Sweeney & Cifuentes (2010, p.39) suggest inexperienced teams find the lack of direct management ‘disconcerting’, and their approach to the division of labour tends to maintain team member autonomy and deemphasise team interdependency. Based on their study of students using a Scrum-
based approach, they suggest that division of labour should be linked to team member competencies as this will increase both the capacity of the team and the quality of the product.

2.4 Organisational and culture change

Promoting, enacting and embedding new ways of working within HE is difficult, especially when it appears, to some, that the current way is working fine (Willeke, 2011; Emiliani, 2015; Havergal, 2016), and any introduction of an Agile way of working ‘will require a substantial cultural change’ (Highsmith, 2009; Sommer, 2019) across all levels of an organisation. From a business perspective, Handy (1999, p.201) expands on this idea further by suggesting that as organisations grow and become more complex, leaders must realise that a ‘range of different cultures’ are needed to meet their ‘diversity of problems’. He offers four activity types that could drive cultural diversity (pp.201-202):

- Steady state: ‘routine’ activities
- Innovation: activities that change what an ‘organisation does or the way it does it’
- Crisis: dealing with the ‘unexpected’
- Policy: ‘overall guidance and direction of activities’

He argues that ‘organizations should differentiate their cultures and structures according to the dominant kind of activity in that department’ (p.202). Applying this idea to the research study raises an interesting question: Do practitioners see their activity as ‘steady state’; that is, following a prescribed way of producing online learning content, or do they see their activity as ‘innovation’ that informs what and how online learning content is produced? The implementation of an Agile-aligned way of working would help to guide and support the latter, while fostering a culture that would support such innovative activity.

The concept of multiple cultures is picked up by Iivari and Iivari (2011) who use the Competing Values Model (CVM) to offer a view of the relationship between organisational change and Agile methods. The authors explain that:

‘CVM is based on two distinctions: change vs. stability and internal focus vs. external focus. Change emphasizes flexibility and spontaneity, whereas stability focuses on control, continuity and order. Internal focus underlines integration
and maintenance of the socio-technical system, whereas external focus emphasizes competition and interaction with the organizational environment.’

(p.512)

The CVM framework offers four types of culture (p.513):

- Group culture (change and internal focus): belong, trust, participation
- Developmental culture (change and external focus): future-oriented
- Hierarchical culture (stability and internal focus): security, order, routine
- Rational culture (stability and external focus): productivity, efficiency, goals

Using this framework, the authors argue that ‘organisational agility […] represents the developmental culture’ as it ‘is usually associated with adaptivity and flexibility, i.e. an organizations’ ability to adjust in response to changes in the environment’ (ibid). Like Handy (1999)’s classification, it is entirely probable that multiple cultures will exist within the same organisation, which is beneficial to the adoption of Agile methods and the nature of the principles that underpin them (Iivari and Iivari, 2011, p.513). This suggests that typically larger organisations, such as the OU, will exhibit multiple cultures and sub-cultures; Agile is a potential means to complement and draw aspects of these together under a single conceptual banner.

Highsmith (2009) provides a warning that ‘no organization, can be infinitely agile in all dimensions. Agility always occurs within certain boundaries—platform architectures for products, organizational frameworks for people.’ Almost a decade later, organisation-wide Agile transformations are becoming increasingly apparent (Rigby et al., 2018; cited in Sommer, 2019, p.21) and a truly Agile organisation will place the Agile values and principles at its centre (Sommer, 2019, p.21). However, there are ‘no empirical guidelines for creating such a transformation’ (ibid) and there is evidence that organisations tend to focus on the method for making improvements, rather than promoting and supporting an agile culture (Balzer et al., 2016). The method and culture are not mutually exclusive. Providing a limited solution, such as a framework, can help to enhance the success of increasing agility in one area of a university – the production of online learning content.

For any change to be effective, the adoption of a new method or practice requires understanding, support and commitment from the top-level management of an organisation (ibid). Clear leadership is critical to changing the organisation and its
culture. This is equally important when any new “innovation” is aligned with strategy. Stacey (1993, p.16) picks up on this theme and offers a deeper insight into one concept that later emerged as one of the Agile principles: self-organising groups. He argues that innovation occurs in organisations that ‘promote the conditions in which spontaneous self-organization can occur’. This enables a ‘new strategic direction to emerge’, one that is not restrained by what has gone before. This has implications for leadership and organisational culture in that managers must enable this to happen and then let staff be. Stacey argues that ‘the normal hierarchy must be suspended for most of the time.’ In a typically bureaucratic and hierarchical organisation, such as a university (Willeke, 2011), this is a big challenge to overcome.

Inherent in enabling self-organising groups is a culture of empowerment and trust. In a HE setting, it is likely that “staff on the ground”, rather than senior management, may ‘see an opportunity to better satisfy students and make their own jobs less complex and more enjoyable’ (Emiliani, 2015); that is, they are best placed to determine where improvements can be made. This then raises the question of whether these staff can take decisions without escalating to management. The Agile philosophy is underpinned by a principle of motivated, empowered and trusted staff (Agilemanifesto.org, 2001b); that is, people who are closest to the activity, are those best placed to take decisions:

2.4.1 Change in Higher Education

A study of an attempt to implement institution-wide change driven by the UK JISC Curriculum Design and Delivery programme is offered by Brown (2014). An examination of five institutions of the 27 involved in the programme suggests a ‘proliferation of alternative “feral” systems’ (p.210), which relates to the claim of multiple cultures and sub-cultures in play at any one time (Handy, 1999; Iivari and Iivari, 2011) – except in this example, these ““feral” systems developed as workarounds by staff on the ground’ (Brown, 2014, p.210) rather than manifesting as a strategic endeavour. The author also explains that ‘a tendency for project remits to drift’ and ‘resistance from other parts of the institution’ (p.208) were common themes across the test cases. The inability to keep projects focused, particularly in terms of time and cost, could signal a need for a new approach to managing projects, one that can accommodate and respond to change, such as Agile.
Of relevance to this research study, Brown (2014, p.212) offers a warning to those considering widespread change in universities:

‘… while it is relatively easy to make executive decisions about new ways of doing things and to design systems and processes that deliver these new things, if the hearts and minds of those who have to implement these systems are not fully engaged then the result is likely to be proliferation of alternative feral systems and lack of real change therefore. Engaging with the culture of an organization is harder than redesigning policies and systems’.

This finding suggests that the development of a toolkit to support practitioners with their practice needs to capture the “hearts and minds” of those involved, otherwise it will be subverted and no improvement to agility will be made.

The need to change is explored further in Salmon and Asgari’s (2019) application of the term “bastion” to their account of transformation in education:

‘The metaphor of bastions is sometimes applied to organisations to suggest some reluctance within them to embrace change and to discourage transformation (Webster, 2009). These arrangements protect people inside the walls and preserve established organisational processes. These are the policies and ways of doing things that, over time, have become valued, well-rehearsed, constantly practised and thus embedded in the cultural norms of the organisations, many unconsciously.’

The authors argue ‘that the traditions of stasis [are] endemic and ever-present in the university sector’ (Mandviwalla and Schuff, 2014; cited in Salmon and Asgari, 2019), as preferences are ‘underpinned by powerful values’ and manifested over time in staffing sub-cultures. The concept of “values” was picked up in an interview with the previous Vice-Chancellor of the OU in which this study took place. He highlighted the challenge of getting people who are so believing in their organisation to embrace change, especially when they feel that the change undermines what the organisation stands for. He suggests that a solution is ‘to respect the historic values of the organisation, but then to reinterpret them’ (Havergal, 2016).

However, there is another perspective on why change occurs so slowly within HE, if at all: normative behaviours; that is, responding to opportunities based on ‘past experiences and histories’, and even based on how members of staff were taught (Marshall, 2010, McMurray, 2001, Coady, 2000; cited in Salmon and Asgari, 2019). This suggests that different communities are underpinned by different sets of values, and it is these values combined with discipline training that drive responses to
organisational change, leading some staff groups to ‘interpret the future from within the existing system’. The authors go so far as to say that it is not unwillingness to change, but rather the barriers are capacity to do so and the capability to seize future opportunities (Macfadyen and Dawson, 2012; McMurray, 2001; cited in Salmon and Asgari, 2019).

A similar sentiment is offered by Bryman (2007; cited in Balzer, 2016, p.453) who warns leaders to avoid ‘failing to consult, not respecting existing values, actions that undermine collegiality, not promoting the interests of those for whom the leader is responsible, being uninvolved in the life of the department or institution, undermining autonomy and allowing the department/institution to drift’. However, there is a danger that staff will continue to exhibit resistance until the benefits of a change are proven, or the pressure to change becomes inescapable (Emiliani, 2015). To help mitigate this, it is suggested that an understanding is required of resistance at the micro-level of meaning making; that is, how individuals respond to the change discourse within an organisation (Thomas and Davies, 2005).

Janssen (2000, p.287) draws on the existing literature that claims ‘innovative work behaviour (IWB) is crucial for the effective functioning and long-term survival of organizations’. He defines IWB as ‘the intentional creation, introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group, or the organization’ (p.288). However, empirical evidence suggests that ‘IWB serves as a problem-focused coping strategy’ in relation to higher levels of job demands (p.289). If considering Agile as a solution to a problem, it will be important for the proposed research to clearly articulate exactly what it is employees perceive to be the problem.

Janssen (2000) also highlights the connection between IWB and effort reward; that is, whether staff feel they are rewarded fairly for transforming their behaviours to meet job demands. In contrast, Emiliani (2015) argues that if educators truly believe ‘students matter most’ then the risk of no reward or recognition for bringing about immediate improvements should not be an impediment for change. Indeed, in a university that places the student at the heart of everything it does, the needs of the student should drive institutional change (Hess and Benjamin, 2015).
2.5 Revealing gaps in knowledge

This thesis argues that, in an uncertain and increasingly complex world, university business models have not evolved to become agile and responsive to change. Although a review of the literature has surfaced existing knowledge on the importance of taking a principle-based approach to implementing Agile (Highsmith, 2009; Waldron, 2017; Hohl et al., 2018; Sommer, 2019), it has also revealed limited previous research surrounding the use of Agile – particularly the implementation of the Agile philosophy – as a means of improving agility in HE.

The body of knowledge around the use of Agile in education, specifically the production of online learning content, is limited. There is some evidence of the use of Agile methods in the design and subsequent development of learning content (Willeke, 2011; Yocum, 2015) and in using Agile methods to teach Agile (Cubic, 2013), but not on the application of the Agile philosophy. Indeed, Yocum (2015) has positioned her work as a starting point in focusing on the implementation of Agile principles in an academic environment and recommended more research in this area. This signals a clear gap for more research that takes a principle-based approach to Agile in HE.

Contextually, the review has also shown that the use of Agile is a growing area of research in the US, but less so in the UK, exposing a need for more UK-based evidence on the use of Agile and its underpinning philosophy.

Additionally, the review suggested that an inability to respond to change quickly is more cultural, embedded in the ways of working of the organisation (Handy, 1999; Sommer, 2019). The implication of this is that further research should acknowledge the relationship between Agile and organisational culture. Put another way, the embedding of Agile principles in practice can help to drive the understanding (“being agile”, rather than “doing Agile”) and behaviours that would contribute to an “Agile-friendly” culture. This could then increase the success of adopting a specific Agile practice or method, such as Scrum.

The impact of Agile on professional practice within HE has emerged as another area ripe for exploration. Balzer et al. (2016) identified few studies that directly examined the impact of the improved processes on the individuals who were supposed to benefit, and there is little evidence of a multi-dimensional view of practice; that is, not just who is producing online learning content, but how they are producing it. Given the cross-
functional and collaborative nature of Agile (Sweeney & Cifuentes, 2010; Irlbeck et al., 2006), this is an important aspect to incorporate as what could work well in one team, may not work well in another.

Given the nature and constraints of a Doctorate in Education (EdD), the research is unlikely to be able to assess the benefits and impact on practitioners and institutions, which will take time to realise. However, the research could provide an actionable framework, informed by multiple perspectives, that indicates possible benefits in the short-term as well as those that will require more time to realise. Assessing longer-term impact would be suited to additional future research, beyond what is presented in this thesis (see Chapter 6: Conclusions and recommendations).

In summary, the gaps and limitations identified in the existing published literature are:

- Research that focuses on the implementation of the Agile philosophy, guided by the Agile principles, in the production of online learning content.
- Research on the impact of Agile on the professional practice of producing online learning content, at an individual and team level.
- Research that focuses on the adoption of Agile in the UK.
- Research that focuses on the adoption of Agile in Higher Education.

These have been translated into objectives which guide the design and conduct of the study:

1. To focus primarily on the Agile philosophy (in the form of its underpinning principles), bringing in examples of Agile practices only where they add value.
2. To produce output(s) that would enable a transformation of professional practice, and lead to future benefits.4
3. To bring in a multi-dimensional view of production in terms of who produces online learning content and how.
4. To provide a UK-based Higher Education perspective on the adoption of the Agile philosophy.

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4 Although a gap has been revealed for research on the impact of Agile on professional practice at an individual and team level, given the constraints of an EdD, an objective has been created that would help to support future research in this area.
2.6 Research questions

Table 1 illustrates how the limitations and gaps in prior research - and subsequent research objectives - discussed in the previous section have informed the development of two primary research questions.

<table>
<thead>
<tr>
<th>Limitation/gap</th>
<th>Research objective</th>
<th>Research question</th>
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| Research on the implementation of the Agile philosophy in the production of online learning content. | To focus primarily on the Agile philosophy (in the form of its underpinning principles), bringing in examples of Agile practices only where they add value | RQ1: Which current online production practices align with the Agile principles?
- To what extent does online production practice differ between and within organisations?
- What is the gap between current practice and future Agile-aligned practice?
| | | RQ2: How can learning organisations implement Agile principles and practices within the production of online learning content?
- How can individual practitioners implement Agile principles in practice? |
| Research on the impact of Agile on the professional practice of producing online learning content, at an individual and team level | To produce output(s) that would enable a transformation of professional practice, and lead to future benefits | |
| | To bring in a multi-dimensional view of production in terms of who produces online learning content and how | |
| Research on Agile adoption in the UK | To provide a UK-based Higher Education perspective on the adoption of the Agile philosophy | |
| Research on Agile adoption in Higher Education | | |

2.7 Conclusion

This chapter has identified and evaluated a range of existing literature, using a systematic approach (Meriam Library, 2018). It provided an overview of literature related to the emergence of Agile and presented an argument for further research into its adoption within HE. From the review, it was possible to reinforce the need to take a principle-based approach to changing the practice of producing online learning content; that is, informing a change of behaviour and culture to increase the chance of successful adoption. From an organisational change perspective, the review has signaled a clear relationship between Agile, change and learning and these are areas that will go on to
inform the research design. From the perspective of designing and developing course content, it was possible to highlight claims as to how Agile could address needs that traditional design models are now unable to fulfil.

Reviewing the literature has revealed gaps and limitations in knowledge that informed a set of research questions to guide the design of the study. These gaps and limitations underpin the argument for research into the implementation of the Agile philosophy within the production of online content in a UK Higher Education environment. While a further gap was revealed – for research into the impact of Agile on professional practice – it was determined that this is out of scope of the study due to its longitudinal nature. Instead, this has prompted an objective to produce an output that would support future research in this area.

The next chapter will present the theoretical, methodological and analytical approaches taken to explore these questions, as well as the learning models that provide a scaffold for a change in practice. The chapter will also offer an overview of how the literature critiqued in this chapter was surfaced and evaluated, along with the role the researcher played in the design and conduct of the study.
Chapter 3. Theory, methodology and methods

3.1 About this chapter

The previous chapter presented a review of the literature, to reveal gaps in knowledge that informed the design of the research. The purpose of this chapter is to introduce the theoretical, methodological and analytical frameworks that have guided the design of the study, as well as the researcher’s role. It introduces the research paradigm and the blend of theories that align with it. It then considers the methodological approaches, including that which was used to surface the literature discussed in Chapter 2: Literature review.

The discussion relating to methods is divided into two parts: the pilot and the main study. Each part presents the methods of data collection, how the research population was selected for each method and the limitations. The chapter then discusses how specific moral and ethical dilemmas were considered and describes the ethics protocol applied to the research. Finally, it presents the analytical framework and the approach to data analysis.

3.2 The theoretical framework

This research is underpinned by a social constructivist philosophy; that is, individual learning takes place through collaboration with others. From an Agile philosophy perspective, this also aligns with the core values that emphasise individuals and interactions over processes and tools.

The use of a pragmatic paradigm (see Section 3.2.2) allowed for an integration of multiple theories and methodological approaches to provide a framework for this study (Table 2). The reasons for this are two-fold: first, to enable the research to remain responsive to the changing environment in which it took place, and second, to enable individual and system views of production to emerge. Switching between theoretical lenses was helpful to navigate through the limitations of each theory (Nicolini, 2009, p.1394); that is, Activity Theory enabled a multi-dimensional view of practice and Engeström’s (2000) concept of expansive cycle of learning enabled a view of how practitioners learn.
Table 2: Theoretical framework

<table>
<thead>
<tr>
<th>Social constructivist philosophy</th>
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<tr>
<td><strong>Ontological stance:</strong> there are multiple versions of the reality, and reality is ever-changing</td>
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<table>
<thead>
<tr>
<th>Pragmatist paradigm</th>
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<tbody>
<tr>
<td><strong>Theoretical framework:</strong> Activity Theory (system view of production); expansive learning (how people learn)</td>
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### 3.2.1 Ontology, epistemology and axiology

Ontology is concerned with the nature of reality. The research took the ontological stance that there are multiple versions of the reality of producing online learning content, perceived or otherwise, and these realities influence how people behave. Epistemology, on the other hand, is concerned with what is known to be true. The epistemological stance was that knowledge is socially and historically constructed by the people involved. People are likely to bring and reaffirm knowledge that has been shaped and influenced by their contexts, professional or otherwise, to the production of online learning content.

Axiology is concerned with allowing the researcher to understand and recognise the role their values and opinion play in the research (Derby University, 2019); it is value-laden (Phillips, et al., 2012, p.78). While people bring their own value-laden interpretations of production, taking an axiological stance provided space for the researcher to position themselves as an Agile practitioner and member of staff in the collection and analysis of data. Both the researcher and the participants hold individual personal values, as well as shared values (in the form of organisational culture), and these values can inform behaviour and influence actions.

### 3.2.2 Research paradigm

Pragmatism is a philosophical position that is better suited to an ontological worldview. McCaslin (2008) suggests that in an education context it is used to seek ‘the truth of what works’ and that ‘truth is relative to the current situation’. He argues that:
‘The pragmatic notion is that truth is always just in front of us. It has no history or future. Truth is always present, it is always now, and concerns itself with how we use it now to understand our realities’.

It is also a paradigm of inquiry ‘suitable for discovering how things work’ and identifying ‘causal mechanisms’ (Kozma, 1994; cited in Phillips et al., 2012, p.77). At its core is the principle that ‘pragmatism is a problem-solving method that aims to create practical knowledge through (scientific) inquiry’ (Biesenthal, 2014).

Hammersley (cited in Lewis-Beck et al., 2004) suggests that the core idea of Pragmatism, as a philosophical movement, is ‘the meaning of any concept is determined by its practical implications; and that the truth of any judgment is determined in and through practical activity’. Studies within the pragmatic research paradigm tend to adopt a mixed-methods approach to data generation, and validity is assured through multiple perspectives, triangulation and bracketing (p.78).

One of the research objectives was to design a study that provides a level of resilience and flexibility needed to conduct research in an uncertain environment. Taking the view that workplace research takes place in an uncontrollable environment (O’Leary and Hunt, 2016, p.2), a pragmatist paradigm helped to justify the use of a blend of approaches (Onwuegbuzie et al., 2009; cited in Gray, 2013, p.29) in order to accommodate (often unpredictable) variables in the research environment.

Acknowledging the capacity for mixed approaches within this paradigm, two theoretical perspectives underpin the research: Activity Theory (see Section 3.2.4) and Engeström’s (2000) expansive cycle of learning actions (see Section 3.2.5).

Pragmatism regards practical experimentation and intervention as ‘an essential part of studying human practices’ (Miettinen, 2006, p.400). In simple terms, this means testing and validating working hypotheses by putting them into practice. Similarly, from a cultural perspective, Luria and Vygotsky (1992; cited in Miettinen, 2006, p.401) argue that a solution to a problem requires ‘the adoption, development and use of a new cultural means which makes the transformation of activity possible’. The development of a toolkit to guide the implementation of Agile principles can be viewed as a culture-informing means that can aide the transformation of professional practice.
3.2.3 The role of the researcher

Taking an axiological stance, it is necessary to explore the role of the researcher and the influence this may have had on data collection and analysis. The study took place at a time of significant change within the University which not only shaped the research, but also the researcher. One means of including the self in research is the use of autoethnography - an approach that ‘connects the autobiographical and personal to the cultural, social, and political’ (Given, 2008a). The researching professional wears many more labels than that of “researcher” and “employee”; they also wear “colleague” and “friend”. However, an attempt to untangle these multiple perspectives in this thesis could obscure the picture of what it is like to work and research in the same institution. Instead, it is helpful to acknowledge that the role the researcher played was not static. The researcher’s experience was coloured by continual change, which added complexity and uncertainty to the research journey, but in the complexity and uncertainty there was also opportunity. Burnard et al. (2018, p.41) capture this feeling well in their examination of the distinctiveness of the EdD and the identity of the researching professional:

‘How researchers view and position themselves, as well as the identity of the researching professional in the workplace, can change. Whether situated as an insider or in-between, encountering new ideas, and embracing a willingness to accept one’s identity as being fluid through engagement in a professional doctorate programme involves risk-taking; the outcomes of ongoing reflexive self-interrogation may be uncomfortable, personally, professionally, culturally and methodologically.’

The first concept key to conducting research was “fluidity” in that the researcher moved between being an ‘inbetween’ and an ‘insider’. Previously, the researcher was an active participant in production at the University but had since moved to another role (in-between); the researcher has always been an employee within the institution (insider). The researcher therefore moves along the ‘insider-outsider continuum’ (p.42) as they have first-hand experience of producing learning content at the University but is no longer actively involved in the practice. While this knowledge has informed the design of research that contributes to both theory and practice, there is nevertheless a need to validate it with active practitioners and to test any assumptions within. The concept of a “continuum” is therefore helpful as it supports the shift in the identity of the researching professional throughout the study.
The second concept that was key was “reflexivity”. The motivation of an EdD is to improve professional practice through the creation of new knowledge. Burnard et al. (2018, p.50) argue that ‘all education is a reflective and reflexive process … as it seeks to expand the horizons both of those being educated and those doing the educating.’ The concepts of “reflection” and “reflexivity” are one way to cross the boundaries of not only identity, but also the focus of the research. One of the principles that guides the Agile philosophy is underpinned by the need to reflect: ‘At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly’ (Agilemanifesto.org, 2001b). While Burnard et al. (2018) offer a reflective frame to support the inclusion of the self, so does the Agile philosophy and this was embedded into the design, and subsequent outputs, of the study. Undertaking an EdD with the OU provided opportunity for ongoing reflexive self-interrogation in the form of progress statements. A reflective account of the experience of conducting this research can be found in Chapter 6: Conclusions and recommendations.

The researcher’s related work

The motivation of this research was to improve professional practice in the production of online learning content through the creation of a toolkit that can help to improve agility. This was driven by the experience of working within three distinct areas of the University over the course of the study: an academic institute, the central Strategy Office and the Students First Transformation programme (Figure 6).

![Diagram](image)

**Figure 6: Changing roles of the researcher (source: author’s own)**

In 2017, the researcher was granted a secondment to the Change & Improvement team within the Strategy Office, primarily to support the implementation of the Students First strategic objectives (see Section 1.3.1). In practice, this meant the researcher was embedded at the heart of the Students First Transformation programme. The Transformation programme presented change on the largest scale ever seen by the
University. It was set to impact on every dimension of the organisation – systems, process, people and culture. Working at the heart of the programme presented new opportunities to shape and make connections with the research study; it also presented challenges in the scale and quantity of work involved. The consequence of this was the need to reconsider the research design to remain suitable to the context in which it was to be undertaken.

Being an insider researcher has shaped both the work and the person; particularly in terms of the opportunities to make connections with practice. For example, contributing to the Teaching Excellence and Innovation workstream by leading a project to illustrate what Agile-aligned production practice could look and feel like. While this sparked the idea of using narratives to present data, it was also a practical way to contribute to the ongoing organisational narrative around “agility” and “Agile”, and the desire to improve responsibility and collaboration in content production.

Whereas the University’s interpretation of “agile” leans towards more general definitions of agility such as the ability to move quickly and easily (Oxford University Press, 2019; Cambridge University Press, 2019), this research sought to explore whether a more contemporary definition of “agile” as ‘planning and doing work in which it is understood that making changes as they are needed is an important part of the job’ (Cambridge University Press, 2019), implemented in other contexts such as software development, could be adopted within HE.

Prior to embarking on the EdD, the researcher was involved in the evaluation of two organisational projects exploring new ways of producing courses: Driving Disruptive Innovation (DDI) and Project Minerva. In 2015, the DDI project, consisting of colleagues from across the organisation, was created to experiment with new practices for developing module design and content (Littlejohn et al., 2015, p.1). Using a science module, the DDI project team initiated the use of an open online platform onto which academic authors could write directly, marking a move away from Microsoft Word-based authoring tools that had become standard practice within the University.

The evaluation of the DDI project was framed by two questions:

1. What forms of professional practice aide agile module production?
2. How are these forms of professional practice negotiated and implemented within module production teams?
The methods chosen to explore these questions were individual semi-structured interviews and focus groups with the staff involved. This allowed for rich descriptions of the experience of the DDI project team to be captured and shared with others considering new ways of working. Cultural Historical Activity Theory (CHAT) was used to analyse change in practice. This enabled the evaluation to position production as a human activity, which is a ‘complex, socially situated phenomena’ in which ‘production activities are driven by the motives of the production teams’ that ‘are related to past experiences such that the way each team works is influenced by the ways they worked in the past’ (p.11).

The evaluation of the DDI project resulted in a set of ‘lessons learned’ (p.10) to guide future related projects. These include:

- ‘the need to reframe “production” as ‘people are constrained by the social norms, culture and values associated with this term’, inhibiting them from ‘future innovation’
- the establishment of ‘teams with the balanced necessary skills’ and the understanding of ‘what others contribute to production’
- promoting shared ‘ownership of innovation’; that is, everyone has a part to play in innovation
- the ability for staff to learn ‘to work in different ways’ through a renegotiation of ‘roles and expectations’
- the need to sustain ‘new forms of open practice’ to avoid reverting to old ways of working.’

Although it was focused on increasing agility (that is, speed) rather than the implementation of Agile per se, it did prompt the idea for a more comprehensive initiative to build on the findings from the evaluation in the form of Project Minerva, which commenced later in the same year. Project Minerva was initiated by the then Pro-Vice-Chancellor. This was a strategic development-funded programme to explore new ways of working that could change how the University produces courses. Its objectives were to:

- ‘develop, test and evaluate rapid and agile module production methods and practices;
- promote innovative pedagogies and new technologies for learning, teaching and student engagement’.

(Sharples et al., 2017, p.3)
Six candidate courses worked with the project team to explore new ways of working and to try new innovative pedagogies. Following a series of evaluation activities, the team were able to establish implications for policy and practice at the OU. These were grouped into “building trust” (p.4), “working cultures and practices” (p.5), “managing innovation in education with technology” (p.5), “new methods of course creation” (p.5), “project management” (p.6), “learning platforms” (p.6), “fast and responsive” (p.6) and “language” (p.7). Relevant insights from the end-of-project reports for Project Minerva have been included as secondary data within Chapter 4: Data analysis.

This work then helped to pave the way for a new initiative, Agile Transformation, which aimed ‘to equip the OU to produce online modules and other digital learning products in time- and cost-efficient ways, and respond to the needs (and feedback) of students, learners and society, through highly collaborative, creative and exciting ways of working together’ (OU, 2018).

The researcher’s interest in Agile as a possible solution to the problem of universities not being able to respond to change quickly was cemented when they became a certified practitioner in Agile Project Management in 2016. Attempts to implement processes and products from the Agile Project Management methodology, and the challenges in doing so, became a motivation to explore the principles and thinking that underpin it. Whereas the Agile Transformation initiative has a focus on Agile methods, the study presented in this thesis focuses on the philosophy that underpins them, rendering it method agnostic and therefore complementary to this project.

3.2.4 Activity Theory

Aligning with a pragmatic paradigm, Activity Theory is an interventionist approach to the study of change in human activity. Activity is at the heart of the research; that is, what people do when producing online learning content. Activity Theory is also an interpretative framework that is well-suited to analysing how people act, learn and communicate as it is ‘deeply contextual and oriented at understanding historically specific local practices, their objects, mediating artefacts and social organization’ (Cole and Engeström, 1993; cited in Engeström, 1999, p.378).

Activity Theory has proved popular in educational technology research, particularly for evaluating change as a result of an intervention. For example, Blin and Munro (2008)
draw on it to discuss the transformation of teaching practices, which did or did not take place, following the implementation of a VLE in their university. By doing so, they found that it allowed them ‘to gain some explanatory insights in phenomena of resistance to educational innovation and barriers to pedagogical transformation resulting from the introduction of technology’ (p.477). However, when placed within the context of the Agile philosophy, it is Shanahan’s (cited in Mills et al., 2010) definition that helps to address the assumptions inherent within the research questions:

‘The concept at the core of activity theory is that the individual-in-context does not merely react to his or her surroundings but has the power to act to change his or her actions and therefore change the community and the surroundings.’

Outside of education, Activity Theory has been applied to the study of organisations. In their study of an organisation that needed to transform its practice in order to innovate at speed within a changing sector, Blackler et al., (1999) used an activity theoretical approach to model future changes. This was made possible by ‘exploring how people achieve their knowing and doing’ (p.6), and collective learning was driven by the ‘inconsistencies and tensions that routinely develop within and between activity systems’ (p.8). This corresponds with Jarzabkowski and Wolf’s (2015, p.167) account of it being used in ‘examining organisational learning associated with organisational and strategic change’. Indeed, they offer 14 studies that have examined organisational practices through an activity theory lens, thereby reinforcing its suitability for the task.

Referring to the ontological stance that guides this research, and the research objectives stated in Chapter 2: Literature review, the ability to surface tensions and inconsistencies within multiple realities of production process could provide the basis on which to impact and transform professional practice.

*Engeström’s activity system*

In terms of a theoretical framework for this study, the research assumes that individual actions do not occur in isolation, instead they occur within a system which is culturally and historically located. It is therefore Engeström’s (1990) modification of Vygotsky’s original theory (Hashim and Jones, 2007) that is most appropriate; specifically, the inclusion of “rules” and the “division of labour” (Figure 7). Engeström (1996; cited in Hashim and Jones, 2007) states that a work activity system comprises:

- individual workers, their colleagues and co-workers
• the conceptual models, tools and equipment they use in their work
• the rules that govern how they work, and
• the purpose to which members of the workplace community direct their activity.

Figure 7: Engeström’s (1990, p.79) activity system [Redacted]

Hasu (2000, p.370) defines an activity system as ‘relatively durable, historically evolving collective formations that produce individual actions and consist of members who share the same general object’. Whichever definition is used, the focus is on individuals and the purpose for which they are working together.

It is possible to define broadly an activity-theoretical framework in relation to this study in that the “subject” refers to the individuals involved in production (the “activity”) with a shared goal of producing online learning content (the “object”) to support learning (the “outcome”). Shanahan (cited in Mills et al., 2010) suggests once these elements have been defined, focus can be turned to the “actions” and “operations” within the framework. In the research context, actions are defined as the chosen processes undertaken to achieve the shared goal, whereas operations are the unconscious micro-level procedures that make up the actions. It is then possible to identify the “artefacts” or tools that mediate the relationship between the “subject” and the “object” (Shanahan; cited in Mills et al., 2010).

The study focused on the roles and principal responsibilities of different stakeholders (“division of labour”) within the system, and the “rules” governing the production of online learning content. In their study of the implementation of a new digital authoring
tool, Littlejohn et al. (2015) note that the division of labour is influenced by the rules that govern previous practices, processes and methods. This relates to Engeström’s (2001, p.136) argument that an activity system:

‘...is always a community of multiple points of view, traditions and interests. The division of labor in an activity creates different positions for the participants, the participants carry their own diverse histories, and the activity system itself carries multiple layers and strands of history engraved in its artifacts, rules and conventions.’

Another strength of the concept of an activity system is its focus on ‘collective transformations rather than individual learning’ that ‘are grounded in resolving contradictions in the activity system’ (Jarzabkowski and Wolf, 2015, p.166). This idea of shared knowledge creation is one that aligns with the “one team” concept within Agile. The contradictions that arise from introducing new ways of working within current practice can be viewed as ‘a key driver for change’ (ibid), which inspires joint solution formation.

3.2.5 Professional, workplace and organisational learning theory

Implicit in the focus of this research is the concept of how practitioners learn new ways of working that align with Agile. Although “professional learning” is commonly attributed to how teachers and educators improve, innovate and adopt new practices, particularly in response to uncertainty (Hood and Littlejohn, 2017, p.1586), this research extends the definition to also apply to other non-teaching practitioners within HE who are also required to change how they work in order to best serve students. Through their assessment of research on professional learning, Hood and Littlejohn (ibid) note:

‘... that professional learning is optimised through the integration of formal learning opportunities with informal, on the job learning, which enables practitioners to engage with and learn from workplace tasks, new opportunities and other people.’

In relation to this study, the introduction of an Agile-aligned approach to producing online learning content, using an Agile toolkit, could provide a bridge between formal learning opportunities, such as training courses and conferences, and informal “on-the-job” learning, such as experimenting with new ways of working.
In contrast to Hood and Littlejohn’s (2017) focus on the individual perspective, Wenger- Trayner et al. (2014, p.13) offer a social perspective on professional learning across a ‘landscape of practice’, which is made up of ‘a complex system of communities of practice and the boundaries between them’. Similar to their use within Spotify (Smite et al., 2019, p.51), the production of online learning content can be viewed as a living example of a ‘landscape of practice’ as multiple teams or “communities” - and communities within communities - come together to design and develop course content. Drawing on this diversity, they offer guidance (p.17) which could affect the successful adoption of an Agile toolkit:

‘Because of the lack of shared history, boundaries are places of potential misunderstanding and confusion arising from different regimes of competence, commitments, values, repertoires, and perspectives. In this sense, practices are like mini-cultures. Even common words and objects are not guaranteed to have continuity of meaning across a boundary. And the boundaries between the practices involved are not necessarily peaceful or collaborative.’

The warning from Wenger-Trayner et al. (2014) is especially pertinent for two reasons: the researcher wishes for a successful adoption of an Agile toolkit, and collaboration is a key principle of Agile. People are required to work together, to experiment together, and to learn together; considering how the concept of Agile and the toolkit itself “appear” to each community is critical to this success. Wenger-Trayner et al. (2014, p.18) do, however, offer a mechanism for ensuring this: ‘bringing together multiple voices that reflect the structure of the landscape’. In the context of this research, this meant ensuring multiple role perspectives were sought from across the production spectrum – from both faculty and non-faculty teams.

Marsick and Watkins (1990; cited in Tynjälä, 2013) ‘conclude that in order to transform professional practice, it is essential that professionals examine and reflect on the nature of their beliefs regarding the background of their actions’. Central to the concept of professional learning is the ability to reflect. To define “reflection” in the context of this research, the summary definition offered by Freed (2003, p.44; cited in Nehring et al., 2010, p.400), following a review of several definitions, speaks to the heart of the study: ‘a rethinking of experiences so that perspectives change and practice (action) is improved’. In their review of Argyris and Schon’s (1978; cited in Nehring et al., 2010, p.401) notion of ‘double loop learning,’ Nehring et al. (2010, p.401) argue that
reflection and reflective practice have come to signify, additionally, a means by which to fundamentally alter one’s beliefs about some aspect of reality’.

Using Biggs’ (1999; cited in Tynjälä, 2013) 3-P Model of Learning in schools as her starting point, Tynjälä (2013) offers a modified version that is suited to examining workplace learning. It is this version that is used in her review and subsequent structuring of the ‘wide and diverse research field’ of workplace learning (p.11). Although the “3 Ps” continue to refer to Presage, Process and Product, the modified version accounts for the lack of formal, explicit teaching in the workplace as well as the ‘context of learning’ – framed as the sociocultural environment (p.14).

The sociocultural context, Tynjälä (2013, p.14) argues, includes:

‘all artefacts of human culture, including organisations and technologies. Furthermore, notions of communities of practice (Wenger 1998), organisational learning (Argyris and Schön 1978, 1996) and activity systems (Engeström 1987, 2011) operate on this level of research on workplace learning’.

Organisational learning and the concept of activity systems are of relevance to this research, as the production of online learning content is an institution-wide endeavour.

While offering several categorisations for research, Tynjälä (2013, p.28) also makes a connection between analysing learning at both an individual and organisational level. She identifies studies in her “organisational learning” line of research that emphasise ‘that it is the responsibility of the employer to create a favourable climate and other prerequisites for learning’. Following her classification, she concludes that studies focusing on organisational workplace learning ‘fall into the sociocultural environment frame of the 3-P model’ (p.31). In addition, Engeström and Kerosuo (2007, p.5) offer an alternative view of the divide between individual and organisational learning – the micro and the macro. This is helpful to the research as it allows for two connected views of the adoption of an Agile-aligned way of working to emerge: one of the experiences of the practitioners, and one of the University.

**Expansive cycle of learning actions**

Engeström’s (1987, 2004, 2011; cited in Tynjälä, 2013, p.30) description of the expansive cycle of learning, which ‘begins when people start to question existing practices, and it continues with modelling, testing and reflecting on a new solution’, offers another potential theoretical model for this research (Figure 8). Arguably, the
questioning of existing practices has already manifested in the Students First Transformation programme. This research provides a means to focus in on specific practices, those involved in the production of online learning content, and to drive action in modelling, testing and reflecting on a new, Agile-aligned solution.

Figure 8: Engeström’s (2000, p.970) expansive cycle of learning actions. Reproduced with permission from Taylor & Francis www.tandfonline.com

From an organisational perspective and building on the concept of expansive learning Tynjälä (2013, p.19) believes:

‘An expansive workplace arranges opportunities for boundary crossing, and values the skills and knowledge of the whole workforce. In contrast, a restrictive workplace values only key persons or groups. In expansive organisations, managers are seen as facilitators rather than as controllers such as in restrictive workplaces. Finally, expansive workplaces value innovation and offer people chances to learn new jobs and skills, while restrictive workplaces tend to rely on old practices and don’t seek innovation.’

The concept of an expansive workplace connects well with the research in that it seeks to bring people together, across boundaries, and promote behaviours and ways of working that enable innovation. In this context, the adoption of the Agile philosophy presents an opportunity for a university to contribute towards building an expansive and innovative workplace that maximises the potential of its people.
**Boundary crossing and boundary objects**

In their review of the literature, Akkerman and Bakker (2011, p.133) suggest a ‘boundary can be seen as a sociocultural difference leading to discontinuity in action or interaction’, and continuity can be described through the use of two concepts:

- **boundary crossing** usually refers to a person’s transitions and interactions across different sites (Suchman, 1994), **boundary objects** refers to artifacts doing the crossing by fulfilling a bridging function (Star, 1989)

(ibid; author’s emphasis).

Akkerman and Bakker’s (2011, p.150) review on boundary crossing and boundary objects has revealed four dialogical learning mechanisms of boundaries:

- Identification, which is about coming to know what the diverse practices are about in relation to one another.
- Coordination, which is about creating cooperative and routinized exchanges between practices.
- Reflection, which is about expanding one’s perspectives on the practices
- Transformation, which is about collaboration and co-development of (new) practices.

This is beneficial to the study in that it adds additional weight to the use of reflection to support change in professional practice, and offers a structure that reinforces the methodological framework.

### 3.3 Methodology for reviewing literature

A literature searching model offered by The Open University Library Services was adopted for this study (see Appendix 2). This model provides a cyclical process of finding and evaluating literature that begins with the research question to inform a search strategy. This section presents the strategy for surfacing and evaluating the literature in Chapter 2: Literature review. An extract of the literature search record can be found in Appendix 3.

#### 3.3.1 Selecting search tools

Several tools were used to search for and generate results relevant to the research topic. The Open University’s Library Services online literature search function, which searches multiple databases and collections, was the primary tool used to surface literature. Secondary tools included Google Scholar, alerts from the reference
management software Mendeley (based on the search terms and reference library to date), and literature signposted within subscribed subject-relevant mailing lists.

In addition, a search was conducted using four theses and dissertations databases (Table 3). Although the searches yielded some results (even with broad search terms), a review of the abstracts deemed the majority as not applicable to this study. The ProQuest Dissertations & Theses database yielded four results for review, of which only one selected for inclusion: a PhD thesis on the use of Agile principles in Instructional Design for online learning (Yocum, 2015).

<table>
<thead>
<tr>
<th>Search terms</th>
<th>Database</th>
<th>Results</th>
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| Agile in Higher Education | EThOS (UK e-theses online services) | 6 results
Selected for review: None |
| Agile in Higher Education | Trove from the National Library of Australia | 5 results
Selected for review: None |
| Agile in Higher Education | ProQuest Dissertations & Theses A&I | 20 results
Selected for review:
4 results
Selected for inclusion:
Yocum (2015) |
| Agile in Higher Educations (+ Agile methods) | Networked Digital Library of Theses and Dissertations | 21 results
Selected for review: None |

### 3.3.2 Selecting search terms and operators

Table 4 provides an indication of the search terms used to surface relevant literature. A mix of search operators was used to surface results from search engines, including phrase searching, truncation and Boolean logic.
A key finding from this activity was in the use of the term “production”, which appears to be more relevant to the OU than other universities. This is likely to be because of its distance learning nature and emphasis on developing and publishing content rather than delivering lectures. The use of the terms “design” and “development” were then incorporated within the strategy to align with terminology used outside of the institution.

### 3.3.3 Selecting search limiters

A preliminary search revealed that the body of literature on the use of Agile methods within HE is limited, with most of the literature being dominated by the software development context outside of the UK. To help refine the scope of literature for the review, a set of inclusion and exclusion criteria was used:

- Peer-reviewed research publications
- Full-text resources available online
- Higher Education-related context
- Literature published in English
- Literature from 2006 onwards
- United Kingdom

<table>
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<th>Table 4: Search terms</th>
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<td><strong>And</strong></td>
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<td>Higher Education</td>
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<td>Definition</td>
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<td>Agile methods</td>
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3.3.4 Including additional sources

To ensure there was adequate representation of Agile methods within HE, conference proceedings, key primary resources, white papers, reports and grey literature (blogs, news items and web articles) were also included. A review of the reference lists of found literature was successful in locating additional sources.

3.3.5 Evaluating literature for inclusion

The Meriam Library (2018) of California State University provides a tool for evaluating the accuracy and reliability of found literature. The unfortunately titled CRAAP Test provides a list of evaluative questions under five headings:

1. Currency (the timeliness of the information)
2. Relevance (the importance of the information)
3. Authority (the source of the information)
4. Accuracy (the reliability, truthfulness and correctness of the information)
5. Purpose (the reason the information exists)

The set of inclusion/exclusion criteria enabled a “first pass” evaluation of found literature, whereas the CRAAP Test provided a “second pass” justification of the literature’s value of inclusion within the final thesis.

3.4 The methodological framework

Integrating multiple theoretical perspectives led to the need to integrate multiple methodological approaches. Both Activity Theory and expansive learning offer qualitative methodological approaches for studying human behaviour (Miettinen, 2006, p.389), creating a clear link between theory and method. However, there are perceived limitations to the use of Activity Theory in that it does not address sufficiently the experiences of different individuals participating in the same activity (Shanahan; cited in Mills et al., 2010); that is, two designers may have very different experiences of designing the same online course. The use of a supplementary methodological perspective therefore supported the surfacing of multiple perspectives.

Phenomenology refers to the study of phenomena, ‘where a phenomenon is anything that appears to someone in their conscious experience’ (Moran, 2000; cited in Gill,
2014, p.118). From a Husserlian perspective, a phenomenological approach is ‘descriptive rather than explanatory: a central task of phenomenology is to provide a clear, undistorted description of the ways things appear’ (Husserl, 1982, sec. 75; cited in IEP, 2019). Drawing on the work of Heidegger, Gill (2014, p.120) suggests that ‘everyone exists in a culturally and historically conditioned environment from which they cannot step outside’, and this environment contextualises experience.

To borrow from Tsoukas’s (2015, p.63) Heideggerian-inspired analogy: ‘Particular human activities and sociomaterial practices are mutually constituted. For example, the practice of grading students’ scripts in a university consists of activities such as pondering grades and recording them. The activities are moments of the practice; one cannot exist without the other’. The use of rich descriptions of multiple perspectives helped to breakdown the practice of “production”, translating it for the contexts in which it was described. From a methodological perspective, Sanders (1987; cited in Gill, 2014, p.121) argues that ‘a phenomenologist should probe a limited number of individuals as sufficient information may be collected through the intensive interviewing of approximately three to six individuals’. Thematic analysis that allows for common themes to emerge is also advocated (p.125).

Using a blend of approaches, such as Activity Theory and Phenomenology, offers a means to map practices and artefacts, including concepts and models, in the production of online learning content, which are grounded in the realities of those who carry them out (Tsoukas, 2015, p.59; Miettinen and Virkkunen, 2005). Similarly, the added phenomenological perspective enables a view that practitioners can do what they do ‘insofar as one is entwined with others and artefacts in specific sociomaterial practices, which endow one’s activities with significance and meaning’ (Sandberg and Tsoukas 2011; cited in Tsoukas, 2015, p.62). This would have been difficult to surface on the reliance of Activity Theory alone.

Table 5 illustrates how these methodologies were blended with another - Action Research - to provide a framework for answering the research questions.
### Table 5: Theoretical and methodological framework

<table>
<thead>
<tr>
<th>Social-constructivist philosophy</th>
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<tr>
<td><strong>Ontological stance:</strong></td>
<td>there are multiple versions of the reality, and reality is ever-changing</td>
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<tr>
<td><strong>Epistemological stance:</strong></td>
<td>knowledge is socially and historically constructed by the people involved</td>
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<tr>
<td><strong>Axiological stance:</strong></td>
<td>research is value-laden, and values can inform behaviour and influence actions</td>
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<tr>
<th>Pragmatist paradigm</th>
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<tr>
<td><strong>Theoretical framework:</strong> Activity Theory (system view of production); expansive learning (how people learn)</td>
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<tr>
<th>Research question</th>
<th>Methodology</th>
<th>Output</th>
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<tbody>
<tr>
<td><strong>RQ1:</strong> Which current online production practices align with the Agile principles?</td>
<td><strong>Pilot study:</strong> Phenomenology</td>
<td>A draft Agile toolkit, derived from empirical evidence, that highlights which principles and practices are common across different production scenarios, and which are not</td>
</tr>
<tr>
<td><strong>Main study (Phase one):</strong> Action Research (AI); Activity Theory</td>
<td><strong>Main study (Phase two):</strong> Activity Theory</td>
<td>A set of illustrative examples that depict possible scenarios for implementing all the Agile principles within production of online learning; a refined Agile toolkit to guide implementation</td>
</tr>
</tbody>
</table>

The research methodology was divided across two studies: a pilot and a main study. Drawing on Akkerman and Bakker’s (2011, p.150) four dialogical learning mechanisms of boundaries, the pilot sought to address RQ1 by identifying the diverse practices of producing online learning content in other education and education-related organisations (identification). This view was supplemented by the main study which sought to build an internal view of the practices of content production. The main study also provided physical space for multiple practitioners to discuss their experiences of production (coordination) by reflecting on what works well now (reflection) and what could work even better in the future (transformation).

The main study also sought to address RQ2 by providing virtual space for multiple practitioners to offer their experiences of production (identification) with a view to
reaching consensus (coordination). This was achieved by reflecting on and critiquing the draft Agile toolkit (reflection) with the purpose of co-developing it for use in practice (transformation). This ensured the focus of the study aligns with the needs of the institution, to be of value to those responsible for strategic decision making, as well to ensure its applicability across the HE sector.

Drawing on the work of Willeke (2011) and Yocum (2015), the pilot study took a phenomenological approach to generating data, whereas the main study utilised a blended approach to involving participants. Action Research within the main study took the form of an Appreciative Inquiry-based face-to-face collaborative workshop.

### 3.5 Research design of the pilot study

The aims of the pilot study were to form an understanding of production within different education-related organisations, and to ascertain which practices align with the principles of Agile (RQ1). The pilot study served to produce empirical data to inform development of the draft Agile toolkit (see Chapter 4: Data analysis). It also served to surface any learnings for the design and conduct of the main study.

#### 3.5.1 Methods of data collection (RQ1)

<table>
<thead>
<tr>
<th>Research question</th>
<th>Methodology</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1: Which current online production practices align with the Agile principles?</td>
<td>Pilot study: Phenomenology Method: Structured interview</td>
<td>A draft Agile toolkit, derived from empirical evidence, that highlights which principles and practices are common across different production scenarios, and which are not</td>
</tr>
</tbody>
</table>

To address RQ1 (Table 6) a structured interview method was used with participants from external education-related organisations (see Section 3.5.2 for selection criteria). The purpose of using a structured interview method was to conjure rich descriptions – the lived experiences – of production practice across different organisational settings, but also to ensure consistency in the questions asked. A copy of the interview questions can be found in Appendix 4. It is worth noting that epistemologically, this method can help produce generalisations and ideal types and possibilities.
The research instrument was designed to help build an understanding of production through meaningful definitions and interpretations of key concepts, including roles and responsibilities and specific methods, practices and tools that are used. The instrument also included questions on the issues faced with their current production processes, as well as the challenges and benefits of implementation. Due to the Agile philosophy’s emphasis on “value”, an additional question was designed to determine how “value” is interpreted in the participants’ context. This concept can also be used as a lens through which participants can consider the extent to which the methods, practices and tools add or detract value from the production of online learning content.

At least one question sought to determine how familiar the participant is with the Agile philosophy, as it was possible that some participants have little or no familiarity or are working in an Agile-aligned way without formally recognising it as “Agile”. In response to Balzer et al. (2016), who identified few studies that directly examined the impact of improved processes on the individuals who were supposed to benefit, where there has been an adoption of an Agile method, participants were asked about the impact of implementation on their practice.

The research instrument was designed to be used with one key informant per organisation. Each participant was asked the same ten questions, and additional sub-questions were prompted by the responses provided. Interviews took place remotely via telephone or the online conferencing service, Skype. Each interview lasted for approximately 45 minutes and was recorded, with informed consent, to aide transcription (see Section 3.7 for the ethics protocol). The practical issues of using this method included the availability of participants (some of whom were based outside of the UK), an unwillingness to reflect and share, and a reliance on memory of the experience of producing online learning content.

3.5.2 Interview population

To ensure applicability and alignment of the data and findings with those derived from within the University, selection criteria were used to determine the interview population within the pilot study:

- The participant operates within the context of Higher Education OR
- The participant operates within an education-related field.
• The participant uses content or learning activity production methods.
• The participant operates nationally, internationally or both.
• The participant is based in the United Kingdom OR
• The participant operates in an open university.

Participants were recommended on the basis that they are deemed to be experienced professionals in online teaching and learning and were introduced to the researcher by the supervision team or other colleagues. An invitation to participate was emailed to each participant, outlining the purpose of the interview and the data protocol (see Appendix 5).

3.5.3 Limitations of the pilot study

One limitation of the pilot study is the extent to which the research findings can be generalised to other studies. The use of the structured interview worked well and generated a wealth of data; however, the original intention was to conduct six interviews with a mix of organisations that met the population criteria. The pilot study resulted in five interviews; all but one being with other HEIs and only one was another based in the UK. While this was valuable in helping to understand how the production of online learning content works outside of the OU, it would have been beneficial to gain a balanced insight with organisations that have actively chosen to adopt an Agile approach to production.

The pilot study also identified the difficulty of ensuring an accurate portrayal of production within each context; that is, other roles may have varying interpretations. This strengthens the justification for taking a multi-perspective, multi-dimensional approach during the main study. Nevertheless, the data generated from the pilot did allow for a comparison across multiple HEIs, to determine common practices and issues that the research findings could address.

From a phenomenological perspective, the interview tool enabled participants to describe their current practice in relative detail. However, some participants found the question which asked them to interpret “value” in their context difficult to answer. The origin of this question was derived from an understanding of the Lean methodology, which has a specific definition of “value”. The responses from participants who were unfamiliar with this were often broad and unrelated to the topic under discussion. The
purpose of including this question was to attempt to identify which aspects of their production process added value to the end user (or “student”), and which aspects did not. The idea being that non-value-adding activity is “waste” and contributes to inefficiency.

Another lesson learnt from the pilot study is the amount of time required to transcribe and analyse data. Each interview took approximately 10 hours to transcribe. One of the consequences of reduced time for transcription is ensuring the validity of content. As transcription took longer than planned, transcripts were not returned to the participants for verification. This learning was implemented in the main study, as anonymised summaries of the findings were shared with participants.

3.6 Research design of the main study

The aims of the main study were to form an understanding of production within the OU, and to ascertain which practices align with the principles of Agile (RQ1). It was also designed to generate data that would further develop the Agile toolkit with an emphasis on how the Agile principles can be implemented in practice (RQ2). Whereas the pilot study focused on the individual lived experience of production, the main study brought in additional dimensions that align with Engeström’s (1987) concept of an activity system, to build a more comprehensive picture of production at the OU. To achieve this, two methods were used: a face-to-face collaborative workshop (RQ1) and an asynchronous online focus group (RQ2), using the digital service, Jisc Online Surveys.

The design of the main study was also informed by the large-scale organisational change programme, the Students First Transformation, which was introduced in Chapter 1: Context and rationale. This programme was to provide an opportunity for the University to change radically how it approaches the production of its online learning content. The use of Agile methods was – and, at the time of writing, still is - being trialed in small pockets of the organisation and, indeed, the IT department have been using Agile methods such as Scrum and Kanban for several years. However, the proposition to transform current production into “Agile production” was new to other areas of the University and required a significant level of buy-in from multiple stakeholders.
Originally, there was an appetite to establish a baseline of the production of online learning content, to develop scenarios of what production could look like if implementing the Agile principles. Analysis of production-related documentation was considered as an additional appropriate method to generate data. While establishing a baseline can be helpful, it also represents a moment in time and given the uncertain and changeable context surrounding production, it may not provide added value to the study. In the initial search for documentation for selection and appraisal (Bowen, 2009, p.28), it became apparent that such documentation was difficult to source or at risk of becoming obsolete due to organisational impacts brought about by the Students First Transformation programme. However, supplementary data in the form of a findings from a related project (Project Minerva) have been used to support the analysis in Chapter 4: Data analysis. Inclusion of these data helps to consolidate and build on existing work in this area at the OU; identifying and promoting examples of existing great ways of working that align with Agile.

At the point the main study was designed, the key benefit to the OU was around accelerating discussion and decision making through providing worked examples that people who know nothing about Agile can engage with because they make Agile meaningful to their working lives. Unfortunately, the Students First Transformation programme was paused and then disbanded before the outputs of the research were finalised. Nevertheless, the use of the pragmatic and flexible framework ensured a connection with the evolving strategic context, while remaining true to its objectives.

### 3.6.1 Methods of data collection (RQ1)

<table>
<thead>
<tr>
<th>Research question</th>
<th>Methodology</th>
<th>Output</th>
</tr>
</thead>
</table>
| **RQ1:** Which current online production practices align with the Agile principles? | **Main study (Phase one):** Action Research (AI); Activity Theory  
**Method:** Face-to-face collaborative workshop | A draft Agile toolkit, derived from empirical evidence, that highlights which principles and practices are common across different production scenarios, and which are not |
To address RQ1 in the main study (Table 7) a Change Lab method was first considered to generate a “reimagined” practice of producing online learning content. This insight would help create a series of illustrative examples of how the Agile philosophy might be implemented within the University, to drive behaviours and actions that push us towards a culture of agility. Bligh and Flood (2015, p.141) explain that a Change Lab ‘is an intervention-research methodology where people work together in a structured and cyclical way to envisage new activity in their organisation’. This definition lends itself well to the focus of the research as does the suggestion of people working together. Collaboration is a cornerstone of the DSDM Agile Project Framework (Agile Business Consortium Ltd, 2018a), and it seemed appropriate to build this into the research study.

A Change Lab with colleagues who have begun to test and learn from the implementation of specific Agile methods, staff who are involved in developing new ways of working within the organisation more generally, and staff group representatives, could have been a suitable method to enable collaboration. However, it became clear that this method is better suited to longitudinal studies in which the researcher has regular access to the participants, as argued by Virkkunen and Newnham (2013, p.15):

‘The practitioners and managers of the unit work intensively together with a small group of researcher-interventionists in five to twelve successive Change Laboratory sessions to analyze and specify the challenges of developing the activity and creating a new model for it. A number of follow-up sessions are typically carried out after the initial experimentation and implementation’

It was decided that it would not be an appropriate approach for an EdD, specifically in the amount of time and resource available. What is key to the chosen method is the involvement of a broad range of practitioners throughout the development of the toolkit; a time-bounded workshop was therefore a more appropriate mechanism in the parameters of the study.

**Appreciative Inquiry**

Encapsulating the spirit of a Change Lab, the actual workshop design was instead informed by a toolkit, developed by Brunel University (Elgyad et al., 2013). An overview of the toolkit can be found in Appendix 6. The JISC final report of Brunel University’s Capturing Data Accurately, Timely and Accessible (CDATA) project
(Elgvad, *et al.*, 2013) details how the project team designed and implemented a composite methodology – the AppreCHATive Inquiry.

The aim of the 15-month project was to review the management of the Brunel University’s course data, and to identify efficiency gains (p.3). The project team intended to use Appreciative Inquiry to elicit and capture views of stakeholders. However, the CDATA project revealed a level of negativity among its stakeholders and therefore made the decision to amend the approach ‘to allow for negative opinions to be voiced’ (p.7). In response to this Elgvad *et al.* (2013) combined two methodologies: de Bono’s (1985) Six Thinking Hats and Appreciative Inquiry:

- **Six Thinking Hats**: The “Black Hat” element was used to capture any negative judgements of the current experience, helping participants to move away from these thoughts and freeing them to imagine the future.

- **Appreciative Inquiry**: A form of transformational inquiry that offers an ‘approach to using contributions of any and all stakeholders to design and redesign the systems within organizations for a more effective and sustainable future’ (Cooperrider *et al.*, 2003).

In practice, stakeholders are asked to write down their negative thoughts and to stick them to the “black hat” (negative viewpoint). The effect of this was participants approached the main workshop activity with a more open and positive mindset (Elgvad, *et al.*, 2013, p.22). From using the composite method, the project team also found:

- it resulted in an ‘optimal environment for stakeholder engagement’
- ‘negativity is natural’
- it is better to take a personal approach to inviting people to participate
- to encourage collaboration, they must actively involve participants
- the methodology can be used for other situations
- ‘where change is required, stakeholders need to be given adequate time to understand the ‘issue’ if they are to effectively contribute to the process’. (pp.16-17)

The main study utilised a minor variation of the AppreCHATive Inquiry toolkit, offered as part of their final report. Instead of hosting a discussion on ‘best practice examples’, the workshop participants engaged in a discussion about the Agile philosophy in the form of the Agile Manifesto (Table 8).
The decision to use an Appreciative Inquiry-based approach was driven by two findings: first, from the interviews held during the pilot it was possible to identify where current practices add value; that is, what participants perceived as worthwhile to the production of online learning content; and second, like Elgvad, et al. (2013, p.7), previous experience of the researcher has shown a leaning towards critical and negative dialogue around production and Agile. By framing the discussion in an unconditional positive way (Cooperrider et al., 2003, p.2), it was hoped that the workshop would generate fruitful insight for the study.

Although commonly used in organisation development contexts, Appreciative Inquiry has been successfully used within HE (Elgvad, et al., 2013). It is also a method of change management, which was relevant as the Inquiry was designed to enable participants to reconsider (and ultimately change) their practice. It also enabled the
researcher to consolidate existing work in this area; identifying and promoting examples of existing great ways of working that align with Agile.

Workshop design
The workshop was designed to be an interactive session with the aim of identifying and promoting examples of existing great ways of working within the current context of producing learning content. As well as looking back, this workshop provided an opportunity to look forward, using the Agile Principles as stimuli, and reimagine the future of production.

After signing in, participants were asked to select a piece of paper at random from a pot; the paper contained a table number at which the participant was invited to sit. This helped to mix up the participants, so people could interact and engage with different perspectives at the table. The researcher noted that this worked to a large extent, however some participants still chose to sit with colleagues they know. The workshop room was large enough to accommodate four tables of up to five participants and the workshop facilitators. The workshop was co-facilitated by the researcher and a colleague with experience of Agile and facilitating group discussion.

Ten A1-sized posters were attached to three walls to support the following activities:

“Agile appetite” activity
An “Agile appetite” poster was positioned towards the back of the room and participants were asked to mark their initials along two continuums: experience of and interest in Agile. This was used to assess where the participants were in their Agile journey.

“Black Hat” activity
A literal “Black Hat” poster was also positioned towards the back of the room and participants were asked to add sticky notes capturing their “negative” thoughts, prior to the start of the Appreciative Inquiry.

“What is working well?” poster exercise
Four posters were available, each with a specific word: People, Process, Products and Practices. These were defined as:

- People: The roles and responsibilities across production
• Process: The overall production process, and any sub-processes that feed into it
• Products: The documentation we use
• Practices: How we manage and facilitate production

The group was split into four sub-groups; each group started with one poster, adding comments that relate to their positive experiences of producing learning content. After five minutes, the groups moved to the next poster, and so on. All participants contributed to all posters.

**Reviewing the Agile Principles**

Copies of the Agile Manifesto (see Appendix 1), outlining the values and principles underpinning the Agile philosophy, were provided as stimulus material to each subgroup. This formed the basis of a general group discussion on their applicability to the organisation. Questions to prompt discussion included: Which principles resonate the most; which do not? Is there anything missing? Participants were then asked to reflect on this discussion as part of the next task.

**“What does the future look like?” poster exercise**

Four posters were available, each with a specific word: People, Process, Products and Practices. These were defined as:

• People: The roles and responsibilities across production
• Process: The overall production process, and any sub-processes that feed into it
• Products: The documentation we use
• Practices: How we manage and facilitate production

In their sub-groups, participants started with one poster, adding comments that relate to their *ideal* experience of production. After five minutes, the groups moved on to the next poster, and so on. All participants contributed to all posters. When the last posters were complete, the group were asked to reflect collectively on the future posters.

**Workshop output**

The outputs from the workshop, combined with the insight generated from the structured interviews, contributed to the creation of descriptions or “vignettes” of how the reimagined future of content could look and feel. Bloor and Wood, (2006, p.183; cited in Jenkins *et al.*, 2010, p.176) argue that vignettes:
‘... collect situated data on group values, group beliefs and group norms of behaviour. While in structured interviews respondents must choose from a multiple-choice menu of possible answers to a vignette, as used in depth interviews and focus groups, vignettes act as a stimulus to extended discussion of the scenario in question’.

Incorporated within the development of the Agile toolkit, the descriptions or vignettes would become a key focal point for the online focus group in response to RQ2, to help others understand how Agile principles could be implemented in practice. They may also offer insight into how staff may react to their implementation. However, the researcher acknowledges issues of the vignette method, such as plausibility and relevance (Jenkins et al., 2010), their impact on how participants respond, and criticisms in terms of oversimplifying complex real word situations and producing unrealistic results (Given, 2008b).

The face-to-face collaborative workshop ran for two hours and took place in a neutral space on campus; that is, a space not traditionally occupied by staff involved in the production of learning content. By taking people outside of their usual environments, it was hoped that they would feel more able to offer their views. The workshop was also video recorded to support analysis, but the video itself was not analysed. Following the workshop, a summary of the outputs was emailed to all participants (see Appendix 7).

3.6.2 Workshop population

To ensure representation across the production spectrum, criteria were used to select participants for the workshop. This ensured a multi-perspective view could be built into the developing Agile toolkit. Selected participants were required to hold one or more of the following roles:

- Module Team Chair
- Academic author
- Curriculum Manager
- Commissioner
- (Senior) TEL Designer
- Learning Designer
- Project Manager
- Editor
- Media specialist
They were also required to have:

- recent practical knowledge and experience of the current production process
- an understanding of the University’s need for change
- experience of using one or more Agile methods OR
- some awareness of Agile Software Development, its principles, methods or practices.

The maximum size of the workshop was limited to 20 people, and the workshop itself was advertised by email to all relevant staff within Professional Services and each faculty. Participants that met the selection criteria were emailed an invitation, outlining the purpose of the workshop and the data protocol (see Appendix 8).

### 3.6.3 Methods of data collection (RQ2)

<table>
<thead>
<tr>
<th>Research question</th>
<th>Methodology</th>
<th>Output</th>
</tr>
</thead>
</table>
| **RQ2:** How can learning organisations implement Agile principles and practices within the production of online learning context? | **Main study (Phase two):** Activity Theory; expansive learning  
**Method:** Asynchronous online focus group | A set of illustrative examples that depict possible scenarios for implementing all the Agile principles within production of online learning; a refined Agile toolkit to guide implementation |

The workshop was followed by an asynchronous online focus group, made up of a different, wider configuration of stakeholders involved in the production of online learning content. The purpose of the focus group was to validate and generalise the output from exploring RQ1, and to validate and further inform the ongoing development of the Agile toolkit that would guide the implementation of the Agile principles, and support discussion and decision making around the adoption of Agile (RQ2). The toolkit under discussion contained the three illustrative scenarios depicting a possible future of producing online learning content, a Reflection Aide for assessing current practice, and an example Dashboard Assessment Tool.
Employing the use of an additional method helped to make Agile meaningful across different/wider staff groups and/or functions. For example, some groups may place more value on some principles than others; that is, academic teaching staff may have a different perspective to staff who edit the content. The nominal group technique was incorporated within the focus group design to draw out these differences, helping to translate Agile for their needs and build a consensus on the Agile toolkit from multiple perspectives. This aligns well with the research’s ontological consideration that there are multiple versions of the reality of production.

McDonald et al. (2009; cited in Bammer, 2014) suggest ‘the nominal group technique involves generating, recording, discussing, and voting on ideas. The structure aims to give everyone an equal say’. The method was suitable for engaging with a small number of people (Bammer, 2014), and the design of the questions were informed by the vignette-based approaches outlined by Jenkins et al. (2010). Similarly, Stewart et al. (2007) outline a protocol for employing the nominal group technique within an organisation in which it can be difficult to gather the right people in the same room, at the same time. This provided the option to use the structured interview tool, tested in the pilot study. However, to generate data typical of an activity-theoretical approach it had to be redesigned; that is, the original set of questions were designed to draw out an individual’s lived experience of production, the new set of questions would need to draw out that experience in relation to the “system” of production.

In practice, availability of both the researcher and the participants was limited and, in the spirit of pragmatism, a variance on Stewart et al.’s (2007) protocol was used in the form of an online questionnaire:

1. Each member of the group responds to the first online questionnaire.
2. The researcher summarises the first round of responses and shares with the whole group, along with a second online questionnaire.
3. Each member of the group responds to the second online questionnaire.

Table 10 outlines the structure of the asynchronous online focus group that took place in August-September 2018:
Participants were asked a range of evaluative open questions as well as ranking questions (see Appendix 9) about the draft Agile toolkit (see Appendix 10). Each questionnaire was available for at least seven days, allowing colleagues to complete at a time that was convenient for them. All data were collected via the digital platform, Jisc Online Surveys, and exported into anonymised Excel spreadsheets for analysis.

### 3.6.4 Online focus group population

To further ensure representation and generalisability, participation was open to all colleagues who were in the process of producing a new module or qualification or had recently done so. Participants were required to:

- have recent knowledge and experience of the current production process
- commit to answering two online questionnaires in the timescales provided.

The maximum size of the online focus group was limited to 10 people, and the opportunity was advertised via the University’s intranet site, Yammer and Twitter. Participants that met the selection criteria were emailed an invitation, outlining the purpose of the focus group and the data protocol (see Appendix 11).

### 3.6.5 Limitations of the main study

Like the pilot, the extent to which the findings from the main study can be generalised remains an issue. Although a wider configuration of practitioners was engaged, allowing for a multi-perspective approach, the workshop took place at a unique moment at a time in the institution’s history in relation to large-scale organisational change.
While this approach resulted in a lack of granularity in relation to the roles present in the workshop, the richer view was generated by participants in the online focus group.

Originally, the intention was to reuse the structured interview tool with a wider network of professionals involved in the production of online learning content. Drawing on the spirit of the Agile philosophy, the aim was to collaborate with 1-2 practitioners involved in the production of online learning content within the organisations already under investigation, as well as with 3-4 staff within the OU. However, the design became influenced by circumstance and the need to remain sensitive to the internal culture and narrative forming around “change”, “transformation” and “agile”. The use of a flexible, pragmatic approach to conducting research certainly came into its own, enabling the researcher to draw on different methods within the methodological framework.

While the focus of the research is on how the implementation of Agile principles can help transform professional practice, it became evident that being responsive, adaptive and agile in the production of online learning content is irrelevant if the teaching content is substandard. While the concept of “quality” – especially within Agile – would have been worthy of exploration; the ability to do so adequately within the parameters of the main study was limited.

Another limitation relates to how data was generated, analysed and presented. During the workshop, the researcher and another member of staff were co-facilitators which may have influenced the discussion and outputs; that is, both facilitators have experience of Agile and are “change professionals”. To help reduce bias, the facilitators guided the conversation rather than contributed their own views. In relation to analysing and presenting data, the relatively small sample of the online focus group provides an extra challenge to assuring anonymity and confidentiality. This was mitigated by “generalising” specific roles that may have led to a possible identification of participants.

3.7 Ethics

Data collection took place both outside of and inside the OU. The pilot research study focused on data collection from external participants, and although some of the specific moral and ethical dilemmas associated with insider research will not apply, the researcher was mindful of ongoing professional relationships between themselves and
the participants, and between colleagues and the participants. Although the risk of harm was low, ensuring anonymity is critical when publishing an account of the findings.

Prior to research being undertaken, the pilot study gained approval from the Human Research Ethics Committee (HREC) at the OU (REF: HREC/2016/2052/Bridgman). A research ethics protocol was implemented that describes how participants were recruited, and how data were collected, stored and accessed; that is, all raw data are stored on a secure, restricted-access server and any identifiable information was removed during transcription. Each participant was asked to complete and return a consent form prior to the interview taking place; and in doing so, agreed to be audio-recorded to aid transcription.

The main study generated all its data from internal participants. This entailed a set of specific moral and ethical dilemmas relating to ‘ongoing personal and professional relationships with participants, insider knowledge, conflicting professional and researcher roles, and anonymity’ (Floyd and Arthur, 2012, p.172). A theme implied by the research questions is “change” and this can be an uncomfortable and emotive subject for people to discuss, particularly when asked to articulate issues they currently face. The methodology needed to ensure that the study did not cause any distress to participants. Additional ethical considerations when conducting research within the workplace include how to ensure confidentiality when departments or job roles are reported and placing the researcher in a position where they feel they need to break confidences (O’Leary and Hunt, 2016, pp.110-11). To help mitigate this risk, ethical approval was sought for both phases of the main study.

Following completion of the pilot study, another application was made to, and approved by, the HREC at the OU for the main study (REF: HREC/2018/2782/Bridgman). The application consisted of a HREC Project Registration and Risk Checklist to ascertain the level of ethics review that is required, and a completed Data Protection Questionnaire. The original research ethics protocol was re-versioned for the main study. According to the institution’s Staff Survey Project Panel (SSPP), small-scale surveys (including interviews and focus groups) that require less than 30 responses from staff do not need approval from the SSPP.

A copy of consent templates for each method can be found in Appendix 12.
3.8 The analytical framework

The analytical framework is the final piece of the overall design of the study (Table 11). Like the theoretical and methodological frameworks, it too combined multiple approaches to analysing the data: deductive and inductive coding, activity-theoretical mapping, and the expansive cycle of learning. This helped to surface findings that relate to the different components of the research which are explored in detail in Chapter 5: Findings and discussion.

Table 11: Theoretical, methodological and analytical framework

<table>
<thead>
<tr>
<th>Social-constructivist philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontological stance:</strong> there are multiple versions of the reality, and reality is ever-changing</td>
</tr>
<tr>
<td><strong>Epistemological stance:</strong> knowledge is socially and historically constructed by the people involved</td>
</tr>
<tr>
<td><strong>Axiological stance:</strong> research is value-laden, and values can inform behaviour and influence actions</td>
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<tr>
<th>Pragmatist paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theoretical framework:</strong> Activity Theory (system view of production); expansive learning (how people learn)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research question</th>
<th>Methodology</th>
<th>Data and Analysis</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1: Which current online production practices align with the Agile principles?</td>
<td><strong>Pilot study:</strong> Phenomenology Method: Structured interview <strong>Main study (Phase one):</strong> Action Research (AI); Activity Theory Method: Face-to-face collaborative workshop</td>
<td><strong>Pilot study data:</strong> Interview transcripts <strong>Main study (Phase one) data:</strong> “Sticky note” text-based data and group discussion transcript; secondary data (Project Minerva reports) <strong>Analysis:</strong> Activity Theory; inductive and deductive coding (Agile principles)</td>
<td>A draft Agile production framework, derived from empirical evidence, that highlights which principles and practices are common across different production scenarios, and which are not</td>
</tr>
<tr>
<td>RQ2: How can learning organisations implement Agile principles and practices within the production of online learning context?</td>
<td>Main study (Phase two): Activity Theory</td>
<td>Main study (Phase two) data: Text-based and numerical survey data; secondary data (Project Minerva reports)</td>
<td>Main study (Phase two) data: Activity Theory; inductive and deductive coding (Agile principles)</td>
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### 3.8.1 Preparing the data

As this chapter has shown, research was conducted across two studies: a pilot and a main study. To begin to address RQ1, structured interviews were completed, by telephone and Skype, with participants from other education and education-related organisations. Following the interviews, the raw interview data were formatted into word-processed anonymised transcripts. As per Saldana’s (2016, p.21) recommendation, coding started as soon as the researcher collected and formatted the data, making a note of any preliminary words for codes that can be refined later.

Data were generated in response to RQ2 by using two methods: a face-to-face collaborative workshop and an asynchronous online focus group. The workshop was video recorded to support analysis only and is not used as a data object within this study. The data outputs of the workshop were primarily handwritten sticky notes, which have been transcribed and counted as individual data points, and a word-processed transcript of the group discussion. The outputs of the online focus group were a combination of numerical and text data in response to the questions asked.

Primary data from the main study have been supplemented with secondary data in the form of findings from a related project conducted at the OU – Project Minerva (see Section 3.2.3). Methodologically, O’Leary and Hunt (2016, p.117) argue that using existing data ‘provides an objective buffer between the researcher and the researched’; that is, the risk of researcher bias in the data is minimised.
3.8.2 Coding the data

Coding the data required a multi-step process (Table 12), using different methods to produce themes, concepts and recommendations that respond to the research questions. Table 12 also shows how data from the structured interviews and the face-to-face collaborative workshop (RQ1) were coded and categorised to inform the first iteration of the Agile toolkit.

The data generated by the online focus group were coded and categorised to inform the next iteration of the Agile toolkit, along with guidance on its implementation (RQ2). Chapter 4: Data analysis presents the “content” view of the analysis (Agile); Chapter 5: Findings and discussion presents the workplace learning view, using an activity-theoretical model and Engeström’s (2000) expansive cycle of learning actions.

<table>
<thead>
<tr>
<th>Table 12: Analytical framework for the study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RQ1</strong>: Which current online production practices align with the Agile principles?</td>
</tr>
<tr>
<td>Codifying data:</td>
</tr>
<tr>
<td>Structural coding method</td>
</tr>
<tr>
<td>Values coding method</td>
</tr>
</tbody>
</table>

| **RQ2**: How can learning organisations implement Agile principles and practices within the production of online learning context? | Step 4 | Output |
| Codifying data: | | Second iteration of the Agile toolkit |
| In Vivo coding method | | |
| Evaluation coding method | | |
| Categorising data | | |
| Themes | | |
| Recommended actions | Mapping to the Agile principles |
| | Mapping to Activity Theory framework |
| | Mapping to Expansive cycle of learning actions model |

First, data generated from each research method were analysed independently, to draw out individual and/or consensus views in relation to the research questions and, second,
all data were analysed together, using an activity-theoretical framework to inform a system view. Initial analysis utilised a deductive approach by uncovering concepts already pre-conceived from the researcher’s understanding of the Agile principles (Table 13). These codes were tested in the pilot study and then used within the main study.

<table>
<thead>
<tr>
<th>Agile principle</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.</td>
<td>Continuous delivery</td>
</tr>
<tr>
<td>Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.</td>
<td>Embracing change</td>
</tr>
<tr>
<td>Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.</td>
<td>Iterative development</td>
</tr>
<tr>
<td>Business people and developers must work together daily throughout the project.</td>
<td>Staff collaboration</td>
</tr>
<tr>
<td>Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.</td>
<td>Motivated teams</td>
</tr>
<tr>
<td>The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.</td>
<td>Face-to-face communication</td>
</tr>
<tr>
<td>Working software is the primary measure of progress.</td>
<td>Measuring progress</td>
</tr>
<tr>
<td>Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.</td>
<td>Sustainable working practice</td>
</tr>
<tr>
<td>Continuous attention to technical excellence and good design enhances agility.</td>
<td>Skills and design</td>
</tr>
<tr>
<td>Simplicity—–the art of maximizing the amount of work not done—is essential.</td>
<td>Simplicity</td>
</tr>
<tr>
<td>The best architectures, requirements, and designs emerge from self-organizing teams.</td>
<td>Self-organisation</td>
</tr>
<tr>
<td>At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly.</td>
<td>Reflection and learning</td>
</tr>
</tbody>
</table>

From a phenomenological perspective, experiences are often described, rather than explained (Langdridge, 2017); that is, in the context of the production of online learning content, people may be able to describe a process from their perspective but may be too far removed to explain its purpose or origin. In this case, the researcher also utilised an

---

5 (Agilemanifesto.org, 2001b)
inductive approach to draw themes and construct concepts from the data. This helped to mitigate the risk of “fitting” the data to the researcher’s expectations and own experiences (O’Leary and Hunt, 2016, p.192).

In total, four coding methods were used to analyse the data. Saldana (2016) offers a series of coding method profiles, which help to explain why each was used:

- **Structural coding:** This method is suitable for qualitative studies that require multiple participants (p.98). It is particularly relevant for an initial analysis of the outputs from the workshop (in the form of sticky notes), as it enables the researcher to code and structure the data in accordance with the questions that were asked in order to ‘examine comparable segments’, commonalities, differences, and relationships’ (ibid). Saldana (2016, p.100) suggests that this method can be used as a ‘categorization technique for further qualitative data analysis’. By counting frequencies, Nancy et al. (2008, p.143; cited in Saldana, 2016, p.100) posit structural coding ‘can help identify which themes, ideas or domains were common and which rarely occurred’.

- **Values coding:** Ontologically, the research study comes from the viewpoint that the reality of producing online learning content is one that is continuously renegotiated and reinterpreted in relation to new and changing circumstances; for example, the adoption of a new tool or process. Saldana (2016, p.131) suggests that the application of values coding can ‘reflect a participant’s values, attitudes and beliefs, representing his or her perspectives or worldview’. Or, as he puts it: ‘The greater the personal meaning [of something to someone], the greater the personal payoff; the greater the personal payoff, the greater the personal value’ (Saldana, 1995, p.28; cited in Saldana, 2016, p.131). This complements the use of Appreciative Inquiry, which began to surface cultural values and belief systems woven through participants’ own experiences of production.

- **In Vivo coding:** The purpose of the research study is to create a toolkit with people involved in the production of online learning content, for people involved in the production of online content. The researcher is not an active member of this “community of practice” or culture, and in order to preserve integrity of the data; that is, to reduce the influence of the researcher, In Vivo coding will
produce codes that are ‘the terms used by [participants] themselves’ (Strauss, 1987, p.33; cited in Saldana, 2016, p.105). Stringer (2014, p.140; cited in Saldana, 2016, p.106) argues that grounding codes in the language of participants ‘[researchers] are more likely to capture the meanings inherent in people’s experience’. Like values coding partners well with Appreciative Inquiry, In Vivo coding partners well with the study’s use of Phenomenology.

- **Evaluation coding:** Participants of the online focus group were asked a series of evaluative questions regarding the first iteration of the Agile toolkit, to help inform a view of how the toolkit could be used in practice (RQ2). Saldana (2016, p.141) suggests evaluation data descriptions can focus on:
  ‘… patterned observations or patterned responses of attributes and details that assess quality. Comparison explores how the program measures up to a standard or ideal. Prediction provides recommendations for change, if needed, and how those changes might be implemented’.

Evaluation coding is therefore an appropriate mechanism for analysing data generated from the online focus group in terms of determining what is the “ideal” within production and what changes are required to the Agile toolkit before it can be tested in the wild.

### 3.8.3 Validity and reliability

To borrow the definitions from O’Leary and Hunt (2016, p.104): validity and reliability can indicate ‘we are measuring what we intend to measure’ and ‘we know the results are not just one-off’. The problem with this, as the authors argue, is it does not necessarily fit with studies of an inconsistent, social nature. The research took place in a complex and changeable environment within a complex and changeable context. The researcher’s ontological stance posits that there are multiple realities of and perspectives on the production of online learning content, and this can give rise to variability and inconsistency in data. Assuring just validity and reliability as the hallmarks of good research is therefore limiting in this case. To address this, the authors suggest two additional indicators: authenticity and dependability.

Validity, along with authenticity, is evident in the inclusion of experienced practitioners in the production of online learning content, to develop outputs that accurately reflect their practice. Accuracy and authenticity are assured through the sharing of summaries
that combine multiple truths back to participants following the activities. The use of a phenomenological approach helped to ensure that they were described in a way that is ‘true’ to the experience’ (p.113), using the participants own language.

Reliability, however, is more difficult to evidence as the methods were used with a small sample of practitioners who volunteered to take part. It is possible that, if used with a different group of participants, different results could be generated. The triangulation of multiple perspectives to uncover similarities and differences increases reliability of the research, as it attempts to find the “common ground”. To mitigate this, dependability was built into the research design by ensuring the methods can be replicated and accounting for researcher subjectivity and bias; for example, a member of the research team reviewed the first round of data summaries before they were shared with the online focus group participants for feedback.

3.9 Conclusion

The purpose of this chapter was to share the theoretical and methodological frameworks that have been applied to the study, including that which has been used to source and evaluate literature for inclusion. Using a pragmatic and flexible framework, a blend of approaches was employed, along with their associated methods, ethical considerations and limitations. Operationally, the study was divided into two: a pilot study (to answer RQ1) and a main study (to answer RQ1 and RQ2). This chapter has explained how each study has been designed to generate appropriate data using multiple methods.

The chapter has also shared the analytical approach taken to analyse the data, including issues around validity and reliability. The next chapter will present the data and results and determine the extent to which they address the research questions.
Chapter 4. Data analysis

4.1 About this chapter

The previous chapter explored the theoretical and methodological approaches that have shaped the study as well as the methods used to generate data. It also introduced the analytical framework that guided analysis of the data. The purpose of this chapter is to analyse the data generated from the three research methods used: the structured interview, the face-to-face collaborative workshop and the asynchronous online focus group. The analysis is presented in relation to whether the data address RQ1 and/or RQ2 and is directed using a single methodological approach: Activity Theory. Where appropriate, secondary data, in the form of findings from a previous, related project at the OU (Project Minerva), are woven into the analysis of data generated within the OU. Prior to this analysis, in line with providing a multi-dimensional view of practice, the chapter explores the multiple perspectives of participants who have contributed the data. A discussion of the meaning, significance and relevance of the primary data regarding the research questions is offered in Chapter 5: Findings and discussion.

4.1.1 About the participants

Each method employed required a different population of participants (as described in Chapter 3: Theory, methodology and methods). In total, 30 individuals participated in this research (Table 14). Five participants were selected from a range of education or education-related organisations, to build an external view of practice. Most participants (n=25) were selected from within the OU, to develop and evaluate the emerging toolkit. This section provides a brief overview of each population.

<table>
<thead>
<tr>
<th>Method</th>
<th>Number of participants</th>
<th>Internal/external to the OU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview</td>
<td>5</td>
<td>External</td>
</tr>
<tr>
<td>Workshop</td>
<td>17</td>
<td>Internal</td>
</tr>
<tr>
<td>Online focus group</td>
<td>8</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Table 14: Breakdown of participants across the study
**Pilot study participants**

The pilot study resulted in five telephone interviews (see Appendix 4 for interview questions), lasting from 30-45 minutes, with participants from a range of education and education-related organisations who met the population criteria (Section 3.5.2). To preserve anonymity, each interview participant has been allocated a personal identifier (InterviewX) based on the sequence in which they were interviewed. These codes were used throughout the analysis.

The participants of the pilot study were:

- A learning designer within a non-UK distance education university. (Interview1)
- An Associate Dean within a non-UK public research university. (Interview2)
- A senior technology-enhanced learning specialist within a non-UK open university. (Interview3)
- A senior product development specialist within an education-related organisation in the UK. (Interview4)
- A senior eLearning specialist within a traditional campus-based university in the UK. (Interview5)

**Main study participants**

The face-to-face workshop attracted 20 staff who were involved in the production of learning content at the University; however, 17 staff participated on the day. There was an almost even split between staff based in Professional Services (n=9) - the collective term for all other non-faculty departments - and staff based in faculties (n=8).

Nine staff volunteered to participate in the online focus group and eight eventually took part. Like the workshop, there was a balance of staff based in Professional Services (n=4) and staff based in faculties (n=4) which helped to reduce potential bias in outputs; that is, it was less likely that the view of production would be skewed towards a faculty perspective or a Professional Services one.

All online focus group participants completed the first part of the activity, and seven of the eight participants completed the second part. Table 15 provides a breakdown of participants according to the role they declared as part of Question 1, and whether they were based in a faculty or Professional Services (Question 2). Each online focus group
participant was allocated a personal identifier (FocusX) to preserve individual anonymity in any discussion or publication of the results.

Table 15: Breakdown of participants in the online focus group

<table>
<thead>
<tr>
<th>Role</th>
<th>Based in a Faculty</th>
<th>Based in Professional Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior-level academic staff</td>
<td>Focus1</td>
<td></td>
</tr>
<tr>
<td>Senior-level academic-related staff</td>
<td></td>
<td>Focus5</td>
</tr>
<tr>
<td>Academic staff</td>
<td>Focus3</td>
<td></td>
</tr>
<tr>
<td>Academic-related and support staff</td>
<td>Focus2, Focus8</td>
<td>Focus4, Focus6, Focus7</td>
</tr>
</tbody>
</table>

In response to Engeström’s (2001, p.136) argument that an activity system is ‘a community of multiple points of view, traditions and interests’, the main study sought to generate insight from a broad range of stakeholders at the OU. Table 16 indicates the breadth of the production roles represented across both the workshop and the online focus group.

Table 16: Production roles represented in the main study

<table>
<thead>
<tr>
<th>Role</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Author</td>
<td>Media Assistant</td>
</tr>
<tr>
<td>Change Manager</td>
<td>Module Team Chair</td>
</tr>
<tr>
<td>Commissioner</td>
<td>Project Manager</td>
</tr>
<tr>
<td>Curriculum Coordinator</td>
<td>Qualifications Manager</td>
</tr>
<tr>
<td>Curriculum Manager</td>
<td>Senior Manager (Teaching)</td>
</tr>
<tr>
<td>Editor</td>
<td>Senior Project Manager</td>
</tr>
<tr>
<td>Editorial Production Manager</td>
<td>Senior-level member of staff within Professional Services</td>
</tr>
<tr>
<td>Learning &amp; Teaching Librarian</td>
<td>TEL Designer</td>
</tr>
<tr>
<td>Learning Designer</td>
<td>Senior TEL Designer</td>
</tr>
<tr>
<td>Lecturer</td>
<td></td>
</tr>
</tbody>
</table>
All roles invited to participate were represented in the workshop apart from “Media Specialist”; that is, staff who provide a specialist skill such as audio, visual and interactive media production, or graphical artists. On reflection, the original list of roles was too restrictive (see Appendix 8) so additional roles such as “Qualification Manager” and “Senior Manager (Teaching)” were included, to broaden representation from faculties.

Of the role perspectives lent to the evaluation of the draft Agile toolkit within the online focus group, the “Module Team Chair” (n=2) and “Curriculum Manager” (n=3) roles were the only two to also be present within the workshop, enabling the possibility of further validating responses from these two perspectives. It is worth noting that participants only engaged with one method; that is, workshop participants did not engage with the online focus group and vice versa. However, the role of “Associate Lecturer” (academic staff who tutor or provide support to students) was absent from both. Whereas the workshop criteria did not include the role, in part due to the physical and geographical nature of the session; the online focus group criteria were relatively open and the asynchronous and online nature could have supported those colleagues working at a distance.

**Participants’ familiarity with Agile**

To illustrate the multiple traditions and interests at play within an activity system, all participants were asked about their familiarity with Agile. Table 17 presents the level of familiarity at both an individual and organisational level for each telephone interview participant.

<table>
<thead>
<tr>
<th>Interview</th>
<th>Familiarity at an individual level</th>
<th>Familiarity at an organisational level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview1</td>
<td>YES – Limited</td>
<td>NO</td>
</tr>
<tr>
<td>Interview2</td>
<td>YES – Limited</td>
<td>YES</td>
</tr>
<tr>
<td>Interview3</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Interview4</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Interview5</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
Only Interview3, a senior technology-enhanced learning specialist within a non-UK open university, expressed no familiarity at neither an individual nor organisational level. Four of the five interviewees stated they had some degree of familiarity at an individual level, but only two suggested there was some familiarity at an organisational level. In these instances, specific methods, such as the Lean methodology, and principles, such as collaboration and iterative development, were specifically mentioned. This suggested there was localised use of Agile methods and practices, but not widespread or strategic adoption across the organisation. This was particularly evident in the response from Interview4, a senior product development specialist within an education-related organisation in the UK, who had a greater familiarity with the Agile philosophy than the others, and although their organisation was ‘developing their familiarity’ with, and ‘embracing’, Agile; it was not particularly familiar with all aspects of the Agile philosophy, noting issues around the concept of early release and ‘expressions like “fail fast” and “fail often”’.

It became apparent that Interview4 operated in an organisation that adopted multiple methodologies; that is, Agile for product development and traditional “waterfall” for supporting functions, such as Information Technology (IT). Another issue identified by Interview4 was central to the principle of “embracing change” and the shift towards accepting uncertainty: ‘complex systems fail in funny ways that are unanticipated, and not only aren’t anticipated but perhaps couldn’t be anticipated’. Interview4 noted that this has an impact on developing trust between partners in different functional areas who are used to ‘things being known’.

Although Interview2 expressed little familiarity of the Agile movement personally, they did state that the Lean methodology had been practised within their organisation over the last 3-4 years whereby certain processes were subject to a business improvement review. Although the participant did not associate the Lean methodology as part of Agile, they did have practical experience and strong familiarity with this method.

The original workshop selection criteria (see Appendix 8) required participants to have experience of using one or more Agile methods or some awareness of Agile Software Development, its principles, methods or practices. Before the workshop commenced, participants were asked to indicate both their experience and interest in Agile along a
scale, from low to high (Figure 9). Participants were not provided with definitions of “low” and “high”; instead, they were free to interpret their experience however they chose. Each workshop participant was allocated a personal identifier (ParticipantX) to preserve anonymity in any discussion or publication of the results.

![What’s your Agile appetite? poster activity (source: author’s own)](image)

Most participants (n=13) positioned themselves as having none to moderate experience of Agile, with only one participant positioning themselves as having both very high experience and interest (Participant17). As a representative sample of staff involved in production, this helps to set a baseline of experience of Agile; that is, use is in its infancy and has yet to mature. All participants declared moderate to high interest in Agile, which, arguably, manifested in their volunteering to participate in the study.

In contrast to the workshop, the original invitation to participate did not require any familiarity or experience with Agile as criteria for participation, however it only attracted people who had (Figure 10):
When asked about their familiarity with the Agile movement, its principles, values and methods, all participants declared a level of familiarity. Six participants (75%) stated ‘Yes – I am familiar, and I have used it in my practice’, and two participants (25%) stated ‘Yes – I am familiar but have not used it in my practice’. This indicates a higher degree of experience of using some form of Agile method or practice.

Participants who had used Agile in their practice were then asked what the impact of Agile had been on their practice. Experiences shared included:

- using specific methods such as Kanban ‘to help sort out small flows’ [Focus8] and Scrum ‘for software development’ [Focus5]

- using Agile to enable ‘thinking of ways of working at different levels’ and responsive resourcing (‘sparring some colleagues’ involvement when not needed’ [Focus1]

- promoting ‘a more focused use of resources and time, bringing together a cohesive team to work on the development of materials and to work closely together and then to bring in required additional roles at key points during the process’ [Focus3])

- enabling responsive development (‘an iterative process in which we can review and change content in response to feedback, new ideas, new challenges to our plans’ [Focus1]).

One participant indicated an intention to use it, however they found a lack of commitment and/or engagement a challenge (‘the openness and sharing of documents and tools only works if everyone uses them - only those setting up the tools and populating them regularly seemed to engage with them’ [Focus2]). Another described how an ‘agile-lite’ approach has ‘transformed’ their approach to projects and change [Focus6]. This confirms an existing level of experience and maturity with an Agile-aligned way of working at the University, on which this research can build or enhance.

Where Scrum was being used for software development, it was felt that its use has ‘created more trusting, autonomous, self-directing staff and teams. Maybe even better
staff satisfaction’ [Focus5], although Focus5 also stated that they had not used ‘Agile methods for production before’.

Looking at the data related to familiarity with Agile from across all three methods it was clear there was a broad spectrum of experience, from very low to very high. The insights offered from these diverse perspectives indicate that practice does not occur “on an even playing field”. This is useful for ensuring the outputs from the study are pitched at the right level for practitioners; that is, they provide the basic information as well as space for increased expertise.

4.2 Addressing RQ1: Aligning practice with Agile

Data were generated from both the pilot and main studies in response to the question: Which current online production practices align with the Agile principles? (RQ1). The aim of the pilot study was to build a picture of the current practice of producing online learning content across different education and education-related organisations. By doing so, this enabled two things to emerge:

- an external perspective that surfaced any similarities or differences between organisations that could influence the application of the findings in other settings
- an assessment of which Agile principles were more commonplace within production, and which were less visible, or not visible at all.

The focus of the main study in addressing RQ1 was different: first, data were being generated from within a single environment in which the curriculum production process is widely known and the researcher has experience in this area and second, it explored both current and future practice, in alignment with the use of Appreciative Inquiry. To surface relevant insights, the value of engaging with colleagues involved in the process was not in generating rich descriptions of practice, but in ascertaining what works well and less well. This was achieved with a face-to-face collaborative workshop designed to produce shared outputs so, unlike the interviews, there was less focus on individual contributions. The data (in the form of “sticky note” text and a group discussion transcript) in this part of the chapter are therefore presented according to multiple perspectives:

- the current state of practice external to the OU
- the current state of practice at the OU
• the desired future state of practice at the OU.

Where appropriate, supplementary data from Project Minerva - a previous related project conducted at the OU (Anastopoulou et al., 2017; Gray et al., 2017) - are included to either corroborate or surface tensions with the data generated in this study. The analysis that follows in Section 4.2.1 onwards is directed by Engeström’s (1990, p.79) concept of an activity system (see Section 3.2.4).

4.2.1 An external view of current practice

A summary of interview data that compares production practices across the five external education and education-related organisations can be found in Table 35 in Appendix 13. To align with an activity theoretical approach to analysis, each organisation interviewed has been individually mapped to Engeström’s (1990, p.79) concept of an activity system, based on the information provided by the interview participant (Figures 11-15). An analysis which compares and contrasts the different activity systems follows the illustrations. This analysis contributed to an external view of production practice in terms of who does what and how which can be used to determine the applicability of the Agile toolkit to different settings (RQ1).

Each activity system shares the same definition of “subject” – the persons whose actions are being explored; that is, the “production team”, with the shared goal of producing online learning content (the “object”) to support learning (the “outcome”). The “tools” mediate the relationship between the “subject” and the “object” ( Shanahan; cited in Mills et al., 2010); the “division of labour” illustrates the roles and responsibilities and the “rules” influence how they manifest in practice. “Community” relates to the environment(s) in which the activity occurs.

The following figures (11-15) represent activity systems within a distance education university, a public research university, an open university, an education-related organisation and a campus-based university.
Figure 11: Activity system within a non-UK distance education university
(adapted from Engeström, 1990)

Figure 11 depicts the practice of producing online/blended learning content at a non-UK distance education university. There was no specific methodology that governed practice, but production did draw on a print-based model. A mix of faculty and specialist staff were involved during the process.

Figure 12: Activity system within a non-UK public research university
(adapted from Engeström, 1990)
Figure 12 illustrates practice within a non-UK public research university. A project-based methodology governed practice and was evident in the use of some tools, such as a Gantt system. A mix of project-based and specialist learning roles were involved in producing learning content.

The activity system shown in Figure 13 depicts the practice of producing online and blended learning content at a non-UK open university. No specific methodology was used to govern and guide practice and there was no evidence of a design model in use. The roles involved during production are few and mostly “optional”.

Figure 13: Activity system within a non-UK open university (adapted from Engeström, 1990)
The activity system in Figure 14 illustrates the practice of producing online learning content within an education-related organisation in the UK. An Agile project methodology governed practice and as such there was evidence of Agile practices, such as sprints and daily stand-ups, and tools such as Kanban and Trello. The roles involved also align with an Agile methodology, such as Product manager and Business analyst.

Figure 15: Activity system within a campus-based university in the UK (adapted from Engeström, 1990)
Figure 15 shows the practice of producing online/blended learning content within a UK campus-based university. Although no specific methodology was followed, practice is supported by use of a learning design framework. A mix of faculty and specialist roles were involved during production, including from IT.

**Tools**

The five activity systems indicated that most participants operated in a context that teaches in more than one medium; that is face-to-face, online and print. In terms of producing content, responses suggest a broad spectrum of practice, from having no standard process to using a specific method or framework. The systems illustrate the diversity of current practice; the majority did not prescribe to a specific project management methodology but do follow a form of “production process”. Where there was a specific process, there was more evidence of a wide range of tools and practices being used (Figures 14 and 15). Three activity systems indicate a range of collaborative practices that facilitated the relationship between the “subject” and the “object”, such as workshops (Figures 12 and 15) and daily stand-ups (Figure 14), as well as digital tools such as Google Hangout (Figure 14) and Skype (Figure 15). The use of these practices and tools is likely to contribute to a richer, more collaborative experience of production for those involved.

When discussing the issues faced with the current process, responses congregated around the themes of time (too little, too slow), resourcing (too little, too late), pedagogical expertise (too little), shifting mindsets (to online, to Agile) and planning (too little or absent). Similarly, when discussing the benefits of the current process, responses related to the ability to respond to and make changes, sharing practice, improved collaboration, and increased efficiency.

**Rules**

When questioned about their approach to project management, only two participants shared that they used a structured approach (Figures 12 and 14), and **Interview4** (from an education-related organisation in the UK) was the only participant to state they were using an Agile approach (DSDM). **Interview3** (Figure 13) stated they used neither a project management methodology nor a standard production process. In terms of the ability of the “subject”; that is, the production team, to fulfil their objective, the lack of a consistent approach is likely to inhibit continuous improvement in practice as team
members effectively “reinvent the wheel” when it comes to each new project. This is in contrast with production teams who have a standard approach with which they can grow their maturity, enabling them to focus on the “object”, rather than the process.

**Division of labour**

The different activity systems illustrate a diversity in the roles and responsibilities employed during production. Where a project-based methodology is being followed, there is evidence of project-based roles, such as a Project Manager (Figures 12 and 14). Where an Agile methodology is being followed, there is evidence of additional roles, such as Product Manager, Business Analyst and Tester (Figure 14). Where no methodology nor process is being followed, roles and responsibilities are few, with many being proclaimed as ‘optional’ (Figure 13). This could have consequences for improving collaboration – a principle of Agile – that requires “business” and “technical”/specialist roles to work together. In other words, the relationship between the “subject” and the “object” is likely to be more restricted in terms of the diversity of insight and expertise offered.

Three of the five systems reference learning design capability, either in specific roles (Figures 11 and 12) or framework (Figure 15), and three systems referenced online learning or delivery capability (Figures 11, 14 and 15). In each system there is evidence of roles and responsibilities that spread across administration, faculty or specialisms, suggesting that collaboration across teams and functions is a key component of producing online or blended learning content.

In summary, the conflicts and tensions identified at the nodes within the Activity Triangle will have had an impact on the production teams’ ability to achieve the shared goal of producing online learning content (the “object”). For example, the availability of tools to support collaboration and dialogue between team members.

**4.2.2 A view of current practice at the OU**

The workshop was designed to reflect on the current and future practice of producing learning content from a positive, appreciative viewpoint. Prior to this, space was provided for participants to “let go” of any negative thoughts or frustrations about their current experience using de Bono’s (1985) Black Hat exercise. Participants were given
ten minutes to write their thoughts on sticky notes and to place them on a poster of a black hat (Figure 16) that was positioned at the back of the room:

![Figure 16: Black Hat poster activity (source: author’s own)](image)

Table 36 in Appendix 13 provides a transcript of the Black Hat poster activity output in which coded data are highlighted in bold. There were 61 individual statements in total – the most generated compared to all the activities in the workshop. From a methodological perspective, this could be viewed as evidence that the initial assumption that people would be caught in a negative spiral of criticism was right, and so validates the decision to use an Appreciative Inquiry-based approach to promote a positive critical perspective.

From a thematic analysis of the “black hat” data, the strongest theme was “time” and there were 10 instances of the word being used in participants’ responses, with specific references to the amount of time of spent ‘talking not enough doing’ and the lack of time for ‘thinking’ and ‘creativity’. From an Agile perspective, the issue of time could be addressed through the adherence to the principles, particularly those focused on reflection and learning (lack of time for ‘thinking’). However, time is required to understand an Agile-aligned way of working, and to transform practice. Other time references were to the production schedule; that is, ‘long’ timelines and lapses in time due to the impact of workloads.
The second strongest theme was “process”. Different procedural aspects of production were also critiqued, including allocating resource, forecasting budgets and workload planning. Some comments indicate a perception that the current process was too long and ‘bureaucratic’, which may contribute to ‘slow decision making’. Other comments picked up on the ‘multiple’ and ‘outdated’ systems in use, as well as cultural aspects such as working in ‘silos’. Some participants referred to Agile specifically, particularly around a lack of understanding as to what it means, what is being done about it and potential resistance to some of the biased metaphors and language associated with it.

Moving on to the Appreciative Inquiry-based part of the workshop, participants were asked to annotate a set of four “What is working well now?” posters (Figure 17) depicting four aspects of production:

- People: The roles and responsibilities across production
- Process: The overall production process, and any sub-processes that feed into it
- Products: The documentation we use
- Practices: How we manage and facilitate production

Tables 37-40 in Appendix 13 provide transcripts of the “Current” poster activity outputs in which coded data are highlighted in bold.
Prior to completing the second poster activity (see Section 4.2.3), the group was asked to reflect on the Agile Manifesto, a copy of which was provided to support the discussion on its relevance for how online learning content is, and could be, produced at the University (see Appendix 1). The discussion lasted for approximately 20 minutes and was video recorded to aide transcription and analysis. The video itself was not analysed. Excerpts from the transcript of the discussion are used to expand on themes raised within the analysis of the current activity system of production at the OU.

For the analysis that follows (Figure 18), the “subject” – the persons whose actions are being explored - is the “production team”, with the shared goal of producing online learning content (the “object”) to support learning (the “outcome”). The “tools” mediate the relationship between the “subject” and the “object” (Shanahan; cited in Mills et al., 2010); the “division of labour” illustrates the roles and responsibilities and the “rules” influence how they manifest in practice. “Community” relates to the environment in which the activity occurs.
Figure 18: Current practice at the OU as an activity system (adapted from Engeström, 1990)

**Tools**

The data from this activity illustrate a range of products that the participants felt add value to producing learning content. These range from documentation (‘production specification’, ‘production schedule’ and the ‘editorial draft cover sheet’) to components of the module or qualification (‘learning outcomes’ and ‘syllabus’) to how people organise and store information (‘folder structures’ and ‘module workspaces’). Specific design and development products also included the ‘TEL design plan’ and ‘visual mock-ups’.

In terms of how production is facilitated and managed, the data suggest aspects of Project Management were valued; these included processes such as budget management, but also the inclusion of the Project Manager role within production. Learning Design and the shift to a qualification-level view were also valued, as well as ‘good collaboration’ and ‘quick catch ups’ between individuals and functional areas. Two comments referred specifically to using data ‘to gain a better understanding of student behaviour’.
**Rules**

In summary, the data from this activity indicate that the participants value having a shared understanding of their role and expertise as well as the process and purpose of producing learning content. Comments suggest there is value in having enough time to conduct ‘upfront planning’ and for ‘reviewing and rewriting’ content. One comment also highlights the benefit of having ‘the right experts to advise at the right time’ to ‘smooth the process’. A few comments also indicate sub-processes that are ‘good’, including quality assurance (QA) and developmental testing.

During the discussion that followed, the ability to respond to change through iterative development was raised. There appeared a tension between the ability to make changes, either because of their size or complexity or because of the resourcing and budget allocated to maintaining the module in presentation; that is, it is significantly lower than the budget for producing the module:

‘… presentation can be one man and his dog […] so there would need to be a considerable shift in resources to operate that kind of model…’

Viewing responding to change as a core part of production could have repercussions for how it is conceptualised at the University: rather than viewing it as two finite stages - production and presentation - using a more iterative process it becomes a constant cycle of production and presentation. However, as one participant explained, this issue with continuous iteration is ensuring students have ‘a parity of experience’. This is particularly important if they have, for example, shifting start dates which impose restrictions on when changes could be made; that is, if changes were made to the first part of the module by X time, then X percent of the students could start studying it.

Another aspect of responding to change was shifting the expectations of quality (“gold-plated” versus “good enough”). One participant described an Agile approach as:

‘a halfway house between kind of what we do at the moment, which is we can produce a module and everybody has a temptation to gold plate it and you think that’s my only chance to touch this for however many years to make some substantial changes […] so it’s kind of a halfway house between that approach and kind of changing it radically every year, so if you have the expectation that OK you can do this, then you do it as well as you can do and then you leave it with the expectation that there are going to be mistakes and you’re going to have to update it, going to have to change it.’
Another participant shared she felt the problem of changing the way of working was cultural, and this needed to change first:

‘We need to have a culture if we were going to go down the Agile route, and we need to understand what it is that people need to buy in to and I think, although there’s been a lot about culture recently, I think we underestimate the impact that culture has on us.’

Another participant picked up on this theme and added:

‘… until we breakdown the silos we won’t be able to get the concentrated period of time for all people […] because we are in LTI and you are in the faculty […] but actually we don’t truly collaborate because we are still in too much of a silo. We’ve got to break those down to enable that to happen.’

One participant commented that there were even silos within silos, and another suggested Agile itself is geared towards certain industries, certain cultures and ways of working. This underlines the need to “translate” it for an educational context; that is, applying it “as is” is unlikely to succeed.

**Division of labour**

The data from this activity indicate that the workshop participants value specific roles (such as ‘editor’) as well as being part of an effective team. Valued aspects of being part of a team include collaboration, communication, structure and stability. The concept of stability is indicated by ensuring continuity of the ‘specialist’ people involved from a knowledge retention perspective, but also in ‘building strong relationships’. In the Evaluation Report of Project Minerva, a related project conducted at the OU, Anastopoulou *et al.* (2017, p.4) corroborate this point:

‘…having a single person in particular role, e.g. an editor or a curriculum manager, throughout module production helps make the module experience more efficient. There is an impact of staff changes on other team members and a management culture where people are seen as resources to be moved around does not facilitate module production’.

Specific skills such as leadership, those that are role-specific, and testing are also valued.

Collaboration was a theme in the discussion that followed the poster exercise; that is, how “business people” and developers work together daily throughout the project. Current practice indicates that collaboration is ‘somebody does something in isolation, then passes it over to somebody else who does something else on it in isolation, then
passes it to somebody else’. There was acknowledgment that for some teams the principle could work well, assuming they were all ‘available’.

The theme of “availability” was picked up in a discussion of the software industry in which there can be ‘high rates of attrition, burning out … and discriminative practices’. This suggests a negative side to collaboration in terms of ensuring people are enabled to collaborate – in a sustained way – in the first instance. In terms of dedicated resource, one participant explained that:

‘…being Agile is about being intense for a shorter space of time and then you’re out; having no distractions when producing modules. You’re not having to do anything else, you’re just working on that and the resourcing has to mirror that so you’re not finding that someone has gone on study leave. You’re in it, it’s intense and then you’re out. You're not having authors who only have 3.5 days to do a learning guide. It’s short-term, dedicated; you do it and then you’re done.’

This suggests there is value in ensuring dedicated and stable resourcing in terms of availability, but current resourcing models only allow for “chunks” of time as team members are spread across multiple teams and activities.

In summary, the activity system of current practice at the OU was dominated heavily by a project and process-oriented culture and this impacted on the ability of the production team to produce online learning content. This culture was evidenced in the number of processes and sub-processes that guide production. There were aspects of the current way of working that participants valued that originate from and reinforce this culture, giving rise to a tension between “traditional” linear project methodologies and Agile. This was also echoed in the preference for “structure” and “stability”, which can be at odds with working in an uncertain and changeable context.

4.2.3 A view of future practice at the OU

Following the group discussion, participants were asked to imagine a new future for producing online learning content and, like the first poster exercise, to annotate a set of four “What does the future look like?” posters (Figure 19) depicting the same four aspects of production:

- People: The roles and responsibilities across production
- Process: The overall production process, and any sub-processes that feed into it
- Products: The documentation we use
• Practices: How we manage and facilitate production

Tables 41-44 in Appendix 13 provide transcripts of the “Future” poster activity outputs in which coded data are highlighted in bold.

Figure 19: “Future” poster activities (source: author's own)

For the analysis that follows (Figure 20), the same definitions have been used as per the current activity system (Figure 18).
Figure 20: Future practice at the OU as an activity system (adapted from Engeström, 1990)

**Tools**

From looking at the data, participants appear to have interpreted ‘product’ in a variety of ways: from documentation and systems to learning products and even people (‘a strong community’). Comments around “documentation” suggest a preference for ‘live’ documents that can be updated as production progresses. There is also a call for just ‘enough’ and shorter, more ‘concise’ documentation that is not duplicated in other places. No specific documents were mentioned. In terms of learning products, different modes of learning (online, offline, mobile) were identified as well as the use of ‘responsive Learning Design’ and the ‘Netflix model’ – a subscription-based business model offering a number of “service plans” to consumers.

Although ‘structured authoring’ was raised as a valued tool for production in both current and future activity systems, there was no specific reference to the ability to author directly into an online learning environment, such as that trialed in Project Minerva. This may be because the workshop participants were not involved in any of the pilot projects that enabled them to do this. Nevertheless, it is helpful to note that there is tension with potential future use of this tool as it would have an impact on most, if not all, elements of the activity system, including roles and responsibilities as found by Anastapoulou *et al.* (2017, p.34):
‘When direct authoring, the role of the module team chair is changing. It is still overloaded but it might lead to a more shared responsibility on module production through a team-shared and visible authoring process. Nevertheless, current practices in module production responsibility lands only on [the module team chair].

**Rules**

The data from this activity indicate a preference for more collaboration in how people physically work together but also conceptually, to reduce the ‘pass the parcel’ approach. One comment suggests the removal of silos would enable this to happen. Some comments offer a desired future in which the process is ‘streamlined’ and subprocesses, such as approvals, are ‘quicker’. This could be aided by empowering people ‘to make their own decisions’. This surfaces a tension around ownership and decision making. While there is a desire for devolved decision making, there is a perception that ‘if academics do not have the final word before module presentation, the degree of academics’ contribution to the institution is undermined’, suggesting ‘the role of an academic within the OU context seems to be blurred in terms of authorship, responsibility and ownership’ (Anastapoulou et al., 2017, p.33).

Two comments suggest that desired aspects of the process are dependent on the flow of resources and context. One comment suggested a future perspective that ‘curriculum is designed’.

**Division of labour**

The data from this activity reveal a variety of suggestions around how the future of production could be managed and facilitated, including a mix of roles with clear responsibilities, teams that are co-located and working together, finding ways for continuous improvement and providing space for testing and learning from new ideas. To have clear responsibilities is a tension between current and future practice, as Anastapoulou et al. (2017, p.11) discovered: ‘here are three different editors (in two different roles, namely Digital Development Editor and Production Editor) that collaborate with the authoring team’. These roles were conflated under one term – “editor” – during the workshop, so it is helpful to understand that there are in fact different *types* of editor involved in production practice. Gray et al. (2017, p.14) also expand on key relationships in their Final Report on Project Minerva, a previous related
project at the OU, by suggesting the ‘academic and course lead would work closely together to provide overall leadership to the team.’

Participants were prompted to consider the roles within production in terms of what they need them to be; what they see that is new, changed, better, effective or successful. The data suggest they would like the ability to bring in additional roles, such as an Associate Lecturer or ‘externals’, as well as transparency and flexibility within the roles themselves. This aligns with Gray et al. (2017, p.15) who also recognised that certain skills and knowledge were missing from the current set of production, although they called for roles that span user experience, assessment and digital. There is also an ask for more student involvement as well for those involved to have a shared understanding of the process. The concept of “flexibility” was also surfaced in Project Minerva (Gray et al., 2017, p.14):

‘The aim is to create roles which are broader and more flexible than currently exist so that individuals contribute to fewer teams with more focused end to end involvement. Such broader roles would also facilitate flexibility in fulfilling skills and functions across a range of levels.’

Referring to an earlier point, the lack of inclusion of Associate Lecturers in the current process may be one reason as to why none volunteered to participate in the study. A culture of collaboration and the means to support it (‘staff room’, ‘hot desking’) are also seen as important, as is the need for people to be ‘committed’ and to ‘think in terms of a “team”’.  

In summary, the activity system of future practice at the OU offered insights in terms of how the conflicts and tensions could impact on the ability of the production team to produce online learning content. The desire for more devolved decision making conflicted with the perception of who “owns” the course, and the call for a broader range of roles involved created a tension with the need for clarity in responsibilities. There was no specific reference to the ability to author directly into an online learning environment, such as that trialed in Project Minerva.

4.2.4 Aligning practice with the Agile principles

Drawing on Activity Theory, Table 18 maps the current production practices of each external organisation interviewed to the Agile principles, indicating whether they are in alignment or in conflict with them.
Table 19 presents a deductive analysis, using the codes derived from the Agile principles (see Table 13 in Section 3.8.2 for a full description of the principles), of the data generated from the current and future-looking poster activities completed during the workshop at the OU. Unlike Table 18, these data are structured across the four dimensions of production: people, process, product and practice.

An analysis of the two tables follows their presentation.
<table>
<thead>
<tr>
<th>Agile principle code</th>
<th>Interviewee 1</th>
<th>Interviewee 2</th>
<th>Interviewee 3</th>
<th>Interviewee 4</th>
<th>Interviewee 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous delivery</td>
<td>In conflict</td>
<td>In alignment</td>
<td>In alignment</td>
<td>Design sprints</td>
<td></td>
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<tr>
<td></td>
<td>“Relay race” handover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embracing change</td>
<td>In conflict</td>
<td>In alignment</td>
<td>In alignment</td>
<td>In conflict</td>
<td>Decision making has not been devolved</td>
</tr>
<tr>
<td></td>
<td>Reluctance to make changes once editorial process complete</td>
<td>Changes can be made to content in the online environment</td>
<td>Flexible team arrangements according to demands</td>
<td>Flexible planning to allow for change</td>
<td></td>
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<tr>
<td></td>
<td>Inability to make changes until the revision cycle</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Iterative development</td>
<td></td>
<td></td>
<td>In alignment</td>
<td>Breakdown tasks</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Staff collaboration</td>
<td>In alignment</td>
<td>In alignment</td>
<td>In conflict</td>
<td>In alignment</td>
<td>Face-to-face discussions on specific topics with the relevant people involved</td>
</tr>
<tr>
<td></td>
<td>Specialists from different functional areas work together</td>
<td>Specialists from different functional areas work together</td>
<td>Lack of awareness of people’s skills</td>
<td>Specialists from different functional areas work together in partnership</td>
<td>Team-based development</td>
</tr>
<tr>
<td></td>
<td>Workshop</td>
<td></td>
<td></td>
<td>Brainstorming workshop</td>
<td></td>
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<td></td>
<td>Hack days</td>
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<td></td>
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<td></td>
<td></td>
<td>Online collaboration tools (e.g. Slack) in use across distributed teams</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Liaising with interdependent teams</td>
<td></td>
</tr>
</tbody>
</table>

Table 18: Findings from the pilot: Mapping production practices to the Agile principles
<table>
<thead>
<tr>
<th>Motivated teams</th>
<th>In alignment</th>
<th>In alignment</th>
<th>In alignment</th>
<th>In alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning designer empowers others to think differently about online learning</td>
<td>Strategic development “we feel we’ve been listened to”</td>
<td>Increased faculty autonomy</td>
<td>Allowing all members of the team to influence what is delivered and how</td>
<td>Inviting ideas from all members of the team</td>
</tr>
<tr>
<td>Supporting faculty to input directly into the platform</td>
<td></td>
<td></td>
<td>Learning Design function is supported and enabled at a high level</td>
<td>Enabling others to take ownership of design</td>
</tr>
<tr>
<td>Increased faculty autonomy</td>
<td></td>
<td></td>
<td>Learning Design empowers others to think differently about online learning</td>
<td></td>
</tr>
<tr>
<td>In conflict</td>
<td>In conflict</td>
<td>In conflict</td>
<td>In conflict</td>
<td></td>
</tr>
<tr>
<td>Dependence on willingness and capacity of IT</td>
<td>Staff not provided with time/relief to participate</td>
<td>Staff not provided with time to produce a course</td>
<td>People do not have the autonomy to make changes</td>
<td></td>
</tr>
<tr>
<td>Face-to-face communication</td>
<td>In alignment</td>
<td>In alignment</td>
<td>In alignment</td>
<td>In alignment</td>
</tr>
<tr>
<td>Implementation of a change management system</td>
<td>Regular face-to-face meetings (showcase)</td>
<td>No regular face-to-face meetings</td>
<td>Face-to-face meetings with specialists from different functional meetings</td>
<td>Face-to-face meetings and workshops</td>
</tr>
<tr>
<td>Use of a Word document as main communication tool</td>
<td></td>
<td></td>
<td>Daily stand ups</td>
<td>Skype consultation</td>
</tr>
<tr>
<td>In conflict</td>
<td></td>
<td></td>
<td>Visibility of work pipeline through online Kanban board (e.g. Trello)</td>
<td></td>
</tr>
<tr>
<td>Measuring progress</td>
<td>In conflict</td>
<td>In conflict</td>
<td>In conflict</td>
<td>In alignment</td>
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<td>---------------------</td>
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</tr>
<tr>
<td>“Relay race” handover</td>
<td>Linear development; follow-up meeting</td>
<td>Testing of courses is not mandatory</td>
<td>Design sprints</td>
<td>Staff able to revisit the design during development and make changes</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Conducting A/B testing with users</td>
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<td>Prototyping</td>
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<td></td>
<td></td>
<td></td>
<td>Inviting feedback</td>
<td></td>
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<tr>
<td>Sustainable working practice</td>
<td>In conflict</td>
<td></td>
<td>In alignment</td>
<td>Revisiting the process to ensure it is sustainable and scalable</td>
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<td></td>
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<td></td>
<td>Enabling others to facilitate workshops</td>
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<td></td>
<td>In conflict</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dependent on one person</td>
</tr>
<tr>
<td>Skills and design</td>
<td>In alignment</td>
<td>In alignment</td>
<td>In alignment</td>
<td>In alignment</td>
</tr>
<tr>
<td>Specialist studio for video/audio production</td>
<td>Hub of specialists</td>
<td>Aligning the pedagogy to online delivery</td>
<td>Shared agreement of success criteria</td>
<td></td>
</tr>
<tr>
<td>Sharing best practice</td>
<td>Ensuring staff are familiar with the tools and applications used within online courses</td>
<td>Understanding what’s of value to students</td>
<td>“Three Amigos” meetings between Business Analyst, Developer and Tester</td>
<td></td>
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<tr>
<td></td>
<td>Understanding what’s of value to students</td>
<td></td>
<td>Continuous mapping to</td>
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</tr>
</tbody>
</table>

139
<table>
<thead>
<tr>
<th></th>
<th><strong>In conflict</strong></th>
<th></th>
<th><strong>In conflict</strong></th>
<th></th>
<th><strong>In conflict</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Following a print production model for online development</td>
<td>Academic specialists not trained in online pedagogy</td>
<td>No design expertise</td>
<td>Lack of time</td>
<td>Lack of thinking about a pedagogical model and logistical production model</td>
<td>external frameworks</td>
</tr>
<tr>
<td>Simplicity</td>
<td><strong>In alignment</strong></td>
<td>Creation of templates</td>
<td><strong>In alignment</strong></td>
<td>Prioritisation (e.g. MoSCoW)</td>
<td><strong>In alignment</strong></td>
<td>Running one workshop for multiple course teams</td>
</tr>
<tr>
<td>Self-organisation</td>
<td><strong>In conflict</strong></td>
<td>Course production coordinator “hands out assignments”</td>
<td><strong>In alignment</strong></td>
<td>Teams can choose to adopt a Learning Design approach – it’s not mandatory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflection and learning</td>
<td><strong>In alignment</strong></td>
<td>Learn from users behaviours</td>
<td>Provide space for reflection</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note that colours are used only to identify visually which practices are in contrast or in alignment with the Agile principles (green = in alignment; orange = in contrast)*
Table 19: Aligning current and future practice to the Agile principles

<table>
<thead>
<tr>
<th>Agile Principle</th>
<th>People</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current</td>
<td>Future</td>
</tr>
<tr>
<td>Continuous delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embracing change</td>
<td>Student input/feedback; Testing</td>
<td>Student developmental testing</td>
</tr>
<tr>
<td>Iterative development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff collaboration</td>
<td>Broader module team</td>
<td>Everyone buys in to collaborative culture; Respect what others contribute; Academics available; Hot desking</td>
</tr>
<tr>
<td>Motivated teams</td>
<td>Culture of enthusiasm; Strong leadership skills; Clear roles and</td>
<td>Understanding of each other’s roles and expertise;</td>
</tr>
<tr>
<td>Face-to-face communication</td>
<td>Talking/conversation; Space to talk</td>
<td>Academics in regular contact; Hot desking</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Measuring progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable working practice</td>
<td>Continuity of people</td>
<td>Transparency of workloads; Flexibility of roles</td>
</tr>
<tr>
<td>Skills and design</td>
<td>Continuity of specialist skills; Maintaining same editor</td>
<td>Learning Design process for a common understanding of the purpose/audience</td>
</tr>
<tr>
<td>Simplicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-organisation</td>
<td>Bring in ALs, externals, tutors when needed</td>
<td>Able to have the right experts at the right time</td>
</tr>
<tr>
<td>Reflection and learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agile Principle</td>
<td>Product</td>
<td>Practice</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Current</td>
<td>Future</td>
</tr>
<tr>
<td>Continuous delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embracing change</td>
<td>Responsive/live documentation</td>
<td>Data analytics to understand student behaviour</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical friend process to continually challenge; Take account of student feedback</td>
</tr>
<tr>
<td>Iterative development</td>
<td>Visual mock ups</td>
<td>Critical reading</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allow time to see what works</td>
</tr>
<tr>
<td>Staff collaboration</td>
<td>One stop repository; Editorial draft cover sheet; Module workspace</td>
<td>Good collaboration between individuals/module teams and LTI; Quick catch ups each week</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Close team</td>
</tr>
<tr>
<td>Motivated teams</td>
<td></td>
<td>Project Manager smooths production; Improved budget management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Everyone values the roles of other team members; Clear roles and responsibilities</td>
</tr>
<tr>
<td>Face-to-face communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable working practice</td>
<td>Production schedule</td>
<td>Good Project Management</td>
</tr>
<tr>
<td>Skills and design</td>
<td>TEL design plan</td>
<td>Responsive Learning Design</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Simplicity</td>
<td>Less but enough documentation; Short and concise and communicated at the point of need; Searchable archive; Integrated data/systems</td>
<td>Learning Design: Designing qualifications</td>
</tr>
<tr>
<td>Self-organisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflection and learning</td>
<td></td>
<td>Thinking about qualifications, not modules</td>
</tr>
</tbody>
</table>
Table 18 provides evidence of an alignment between current production practice and the Agile principles across five different types of education and education-related organisations. The only example to have complete alignment was that of the education-related organisation that had previously adopted an Agile methodology. The data indicate that there were more examples of practice that are in alignment (30 examples) with the Agile principles than there were that contrast with them (20 examples). The areas that lacked evidence of Agile-aligned practice were the ability to deliver frequently, to develop iteratively, and to reflect and learn. Areas with greater evidence of Agile-aligned practice were staff collaboration, motivated teams, face-to-face communication and skills and design.

Combined with the diversity of practice as evidenced across the five external activity systems, the data in Table 18 underline the need to consider different levels in the maturity and conscious application of the Agile principles to practice; that is, practitioners are likely to be already working to some principles without realising. It was this finding that contributed to the decision to use an Appreciative Inquiry-based approach to generate insight within the workshop, spending time appreciating what works now so the “change gap” from current to future practice is reduced as practitioners are not starting from scratch.

Table 19 shows that it is possible to map aspects of both the current experience of production and the future, desired experience of production to the Agile principles. It also shows that there are current aspects that not only align but are also valued. This is evident across all four dimensions of production. There were two principles against which it was not possible to map any examples of practice – either because it does not occur or there was no evidence for it: “continuous delivery” and “measuring progress”. The most common Agile principles evident were “staff collaboration”, “motivated teams” and “skills and design”.

4.2.5 Summary of analysis for RQ1

Engeström’s (1990, p.79) concept of an activity system was used as the principle unit of analysis for answering RQ1: Which current online production practices align with the Agile principles? The data analysed were generated across two methods. Data were generated from outside of the OU using a structured interview approach, and inside the OU using a collaborative face-to-face workshop.
In answering RQ1, the analysis can be viewed in two parts: first, to determine the variety of production practices across different organisational settings, including an understanding of production through meaningful definitions and interpretations of key concepts, roles and responsibilities and specific methods, practices and tools that are used, and, second, to determine an existing alignment with Agile. The analysis of the interview data revealed a diversity of practice, guided by clear methodological approaches or none at all. Where there was a clear process and/or methodology in place, there was evidence of a broader range of tools and roles and responsibilities.

In terms of addressing RQ1, this view helps to establish an “external baseline” of production practice, increasing the generalisability of the findings and outputs from this study. The analysis of those practices against the Agile principles emphasised the need to consider different levels in the maturity and conscious application of the Agile principles to practice; that is, practitioners are likely to be already working to some principles without realising.

The analysis of the workshop data, using the activity system concept, resulted in two activity systems for comparison: the current, valued, state of production practice at the OU and the desired, future state of production practice. The analysis of those practices against the Agile principles revealed the size of the change gap from old world, to new and can be used to identify those areas that require more support and intervention to successfully transition to fully Agile-aligned practice.

4.3 Addressing RQ2: Implementing Agile in practice

In addition to building on the response to RQ1, the main study was also designed to generate findings in response to RQ2: How can learning organisations implement Agile principles and practices within the production of online learning context? The method for addressing this question was an asynchronous online focus group, to evaluate and refine the first iteration of the Agile toolkit, which was developed from the findings in response to RQ1 (see Chapter 5: Findings and discussion for a reflection on its development).

By involving practitioners within the production of online learning content at the OU, the toolkit has effectively been designed by practitioners, for practitioners. As well as guiding the implementation of the Agile principles in practice, the toolkit also serves to
inform discussion and decision making within educational organisations who are considering adopting Agile methods and practices. The toolkit rests on the hypothesis that the successful adoption of Agile methods relies on the successful adoption of the Agile principles, to embed the Agile philosophy in the organisational culture.

The draft toolkit under discussion within the focus group (see Appendix 10) contained illustrative scenarios of Agile principles implemented within practice, a Reflection Aide for assessing current practice, and a Dashboard Assessment Tool to highlight the extent to which there is existing evidence of Agile-aligned practice. The full set of focus group questions can be found in Appendix 9 and individual responses to the first round of questioning can be found in Appendix 13. These responses are summarised and presented using the four thematic categories (structural coding) to align with the coding of the data generated from the workshop:

- **People**: The roles we have within the design and development of online learning content
- **Process**: For the design and development of online learning content
- **Products**: The documentation we use within the design and development of online learning content
- **Practices**: How we facilitate and manage the design and development of online learning content

Where appropriate, sub-themes are indicated within these categories. These are illustrated by example comments taken directly from the data source (In Vivo coding).

The second round of questioning aimed to reach a consensus on the elements of the toolkit under discussion. The consensus data are presented in Section 4.3.1 onwards\(^6\). Each online focus group participant was allocated a personal identifier (FocusX) to preserve individual anonymity in any discussion or publication of the results (see Table 15 in Section 4.1.1 for a breakdown of participants). Building on the analysis in Section 4.2, Activity Theory will be used to frame the conflicts and tensions emerging from both the individual and the consensus responses. The analysis from this chapter will go on to inform further development of the toolkit.

\(^6\) Focus2 did not contribute to the second part of the online focus group, so their views inform but are not included within the consensus view.
4.3.1 Conflicts and tensions with current processes

Views on current processes

In part 1 (Question 4), participants were first asked to describe the current process for producing (design and development) online learning content from their perspective. The responses to Question 4 indicate a range of roles and practices are involved in the production of online learning content, some of which align to the concept of collaboration (‘module team comes together’, ‘meet regularly’). This validates the data generated from the workshop (see Section 4.2.2) in relation to the cross-functional dynamic of a production team at the OU. There also appeared to be a conflict between Agile methods and practices in use, such as Kanban and iterative development and a ‘very waterfall’ process which is ‘sub-optimal for rapid creation of digital content and activities’ (Focus5). Like the analysis of the external activity systems, there was a clear diversity of practice even within the same institution.

Individual responses to this question were not summarised and presented back to the participants for further comment during the second part of the online focus group. This question was designed to provide context for the later responses, if required.

Issues with current processes

Question 5 asked participants about the issues they faced with producing online learning content using the processes as described in the previous section. Being part of a team with meaningful relationships and the diversity of practice among different teams were specific issues raised with the current experience. The “handover” process, also criticized within the workshop, was described as ‘clunky and inefficient’ and resulted in ‘stress’ which could be indicative of a lack of collaboration between Professional Services and faculties.

To help build a consensus view on the issues faced with producing online learning content using current processes, participants were asked to respond to a summary of the findings from Question 5, indicating whether they either agreed or disagreed with the points raised (Table 20).
<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lack of access to tools to support and enable collaborative writing.</td>
<td>Focus1, Focus3, Focus5, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>2. Version control caused by team members working at different times.</td>
<td>Focus1, Focus3, Focus5, Focus8</td>
<td></td>
</tr>
<tr>
<td>3. Silo and lone working.</td>
<td>Focus3, Focus5, Focus6, Focus8</td>
<td>Focus1</td>
</tr>
<tr>
<td>4. Lack of visibility of progress, and what is hindering progress.</td>
<td>Focus3, Focus5, Focus6, Focus7, Focus8</td>
<td>Focus1</td>
</tr>
<tr>
<td>5. Too many emails about production.</td>
<td>Focus1, Focus3, Focus8</td>
<td>Focus5</td>
</tr>
<tr>
<td>6. Misalignment of budget expenditure deadlines with content development timescales;</td>
<td>Focus3, Focus4, Focus5</td>
<td></td>
</tr>
<tr>
<td>i.e. budget is set too early in the process, leading to inaccurate budget estimations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Lengthy approval processes, and indecision and lack of understanding that quick decision making is needed.</td>
<td>Focus3, Focus4, Focus6</td>
<td>Focus1, Focus5</td>
</tr>
<tr>
<td>8. Inability to build deeper working relationships as teams form and then disband.</td>
<td>Focus3, Focus4, Focus5</td>
<td>Focus1</td>
</tr>
<tr>
<td>9. Delays in handovers; early delays have a “domino effect” throughout production.</td>
<td>Focus3, Focus4, Focus5, Focus8</td>
<td></td>
</tr>
<tr>
<td>10. Slow or poor performing IT systems, and barriers between different design platforms.</td>
<td>Focus1, Focus3, Focus4, Focus6, Focus7, Focus8</td>
<td>Focus5</td>
</tr>
<tr>
<td>11. Use of too many or outdated tools, and text-based processes.</td>
<td>Focus3</td>
<td>Focus1, Focus5</td>
</tr>
<tr>
<td>12. Variance in team size and ways of working.</td>
<td>Focus3, Focus7</td>
<td>Focus1, Focus5, Focus8</td>
</tr>
</tbody>
</table>
Most participants agreed that “slow or poor performing IT systems, and barriers between different design systems” was a key issue faced in production, followed by “lack of access to tools” and “lack of visibility of progress”. However, there was a conflict in opinion regarding point number 10: “barriers between different design platforms” sounds relevant but would benefit from further details and context - think it’s probably referring to the fact that we now have multiple different delivery channels’ (Focus5). This suggests a level of confusion or misunderstanding about the relationships between different platforms. There also appears to be a lack of consensus around “too many or outdated tools” and “variance in team size and ways of working” being common issues.

Value of current processes

In line with the Appreciative Inquiry-based approach used within the face-to-face collaborative workshop, as well as issues, participants were asked to consider what works well within their current practice; that is, what they value (Question 6). Specific roles (editor, tutor) were included as examples of what participants value as well as specific aspects of production (accessibility, Learning Design). The inclusion of the role of “tutor” presents a conflict with the data generated from the workshop in that participants felt tutors or “Associate Lecturers” are notably absent from current practice. Most responses focused on the mix of specialisms within a team and general team working. Both Focus1 (a senior-level member of staff in a faculty) and Focus6 (a member of staff in Professional Services) referred to “tools” but did not describe which or how they are used.

To help build a consensus view on what is valued within current practice, participants were asked to respond to a summary of the findings from Question 6, indicating whether they either agreed or disagreed with the points raised (Table 21).
<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Expertise of media specialists and other colleagues.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>2. Ability of editors to enhance the quality of content and to provide constructive feedback and advice.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>3. Enthusiasm and shared dedication within the team.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>4. Flexibility of the production team to allow for innovation and reworking of content.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>5. How accessibility is used to inform decision making.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>6. Managerial support to keep coherence with other pathways on the programme, but also to provide space for the team to be able to fulfil their vision for a student experience.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>7. Learning Design workshops.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>8. Team work and opportunities to work with different colleagues from different teams.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>9. Recruitment of interested and experienced tutors, to support production or provide hands-on tutorial support.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td>Focus5</td>
</tr>
<tr>
<td>10. Being able to provide choice, flexibility and 24/7 access to students.</td>
<td>Focus1, Focus3, Focus4, Focus7, Focus8</td>
<td></td>
</tr>
</tbody>
</table>

Most participants stated explicitly that they agreed with all points presented in the summary: ‘[t]he people related aspects because it is people not process which … makes things better’ (Focus6). This signals a possible tension between personal preferences:
those who are people-oriented and those who are process-oriented. There was less
discussion regarding what people value in comparison with the discussion about what
issues people face, which strengthens the argument that people are more likely to be
critical than positive. In relation to point 4, one participant highlighted another tension
based on previous experience: ‘flexibility is great to get the result, but the costs and
extra stress/pressure could have been avoided. This should be an exception rather than
the rule which it currently is’ (Focus4).

In relation to point 9, there was some conflict in opinion: ‘I've seen more experience of
serious digital literacy issues amongst tutor colleagues’ (Focus5). This suggests a
perceptual difference between a desired experience and reality in the participants’
responses.

4.3.2 Conflicts and tensions with the Agile principles

To answer the next series of questions in part 1 of the focus group, participants were
asked to review the Agile principles themselves as the basis for the Agile toolkit. The
purpose of these questions was to identify which principles are perceived as key to
transforming practice from the perspective of practitioners.

Agile principles for increasing agility

In part 1, participants were asked to rank the Agile principles in order of importance for
increasing agility within the production of online learning content. Table 22 indicates
the principles that the participants felt were “highly important” for increasing agility.
Four participants felt that “Face-to-face communication” was neither important nor
unimportant.

Table 22: Building a consensus on which principles are highly important for increasing agility

<table>
<thead>
<tr>
<th>Agile principle</th>
<th>Ranking (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly</td>
<td>87.5 (n=7)</td>
</tr>
<tr>
<td>2 Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage</td>
<td>75 (n=6)</td>
</tr>
</tbody>
</table>

7 Response rate of 50% or above
<table>
<thead>
<tr>
<th><strong>4</strong> Business people and developers must work together daily throughout the project</th>
<th>62.5 (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5</strong> Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done</td>
<td>62.5 (n=5)</td>
</tr>
<tr>
<td><strong>10</strong> Simplicity--the art of maximizing the amount of work not done--is essential</td>
<td>62.5 (n=5)</td>
</tr>
</tbody>
</table>

**Agile principles for increasing collaboration**

Participants were then asked to rank the Agile principles in order of importance for increasing collaboration within the production of online learning content. Table 23 indicates the principles that the participants felt were “highly important” for increasing collaboration. Seven participants felt that “Face-to-face communication” was important.

Table 23: Building a consensus on which principles are highly important for increasing collaboration

<table>
<thead>
<tr>
<th>Agile principle</th>
<th>Ranking$^a$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4</strong> Business people and developers must work together daily throughout the project</td>
<td>87.5 (n=7)</td>
</tr>
<tr>
<td><strong>12</strong> At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly</td>
<td>87.5 (n=7)</td>
</tr>
<tr>
<td><strong>5</strong> Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done</td>
<td>75 (n=6)</td>
</tr>
<tr>
<td><strong>11</strong> The best architectures, requirements, and designs emerge from self-organizing teams</td>
<td>75 (n=6)</td>
</tr>
<tr>
<td><strong>2</strong> Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage</td>
<td>62.5 (n=5)</td>
</tr>
<tr>
<td><strong>1</strong> Our highest priority is to satisfy the customer through early and continuous delivery of valuable software</td>
<td>50 (n=4)</td>
</tr>
<tr>
<td><strong>10</strong> Simplicity--the art of maximizing the amount of work not done--is essential</td>
<td>50 (n=4)</td>
</tr>
</tbody>
</table>

$^a$ Response rate of 50% or above
Most participants agreed with the rankings: ‘All of them as they are all important to enable us to deliver what we need to’ (Focus3), and ‘for agility then the less people involved, the more willing they are to accept change and simplicity- however this can impact on quality, therefore reflection and regular meetings help keep a bit of reality’ (Focus8). One participant ‘expected to see Principle 11 more highly rated’ (Focus5), which suggests the ability to self-organise is valued.

**Agile principles for driving change**

Participants were finally asked to rank the Agile principles in order of priority for driving change within the production of online learning content. The MoSCoW prioritisation method – used to determine what really must be included, without which the product is compromised - was used to support this (Agile Business Consortium Ltd, 2019b). Table 24 indicates the principles that the participants felt were a “high priority” for driving change. In addition, participants felt “Simplicity” (n=6) and “Measuring progress” (n=5) were a medium priority.

Table 24: Building a consensus on which principles are a high priority for driving change

<table>
<thead>
<tr>
<th>Agile principle</th>
<th>Ranking9 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly</td>
<td>87.5 (n=7)</td>
</tr>
<tr>
<td>1 Our highest priority is to satisfy the customer through early and continuous delivery of valuable software</td>
<td>62.5 (n=5)</td>
</tr>
<tr>
<td>2 Welcome changing requirements, even late in development. Agile processes harness change for the customer’s competitive advantage</td>
<td>50 (n=4)</td>
</tr>
<tr>
<td>4 Business people and developers must work together daily throughout the project</td>
<td>50 (n=4)</td>
</tr>
<tr>
<td>11 The best architectures, requirements, and designs emerge from self-organizing teams</td>
<td>50 (n=4)</td>
</tr>
</tbody>
</table>

There was some disagreement with the ranking; for example, it was argued that Principle 1 and Principle 11 should be higher priority (Focus3, Focus5) and that ‘having the students in mind when designing learning and including them in the process can also help with chan[g]ing requirements/circumstances’ (Focus7). This highlights an

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9 Response rate of 50% or above
interesting tension between a student focus – producing the right content for them - and an “operational” focus – organising and improving the practice of teams.

There was one principle that ranked high across all three questions: Principle 12 At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly. This suggests that practitioners value the ability to reflect and continuously improve practice as a means of increasing agility and collaboration and driving change. The tension here is the perceived inability to do so within current practice.

4.3.3 Conflicts and tensions with using the Agile toolkit

Reflection Aide

As part of the focus group, participants were directed to review the Reflection Aide, which forms part of the Agile toolkit (Figure 21). The draft toolkit can be found in Appendix 10. The purpose of the Reflection Aide is to enable practitioners to reflect on aspects of their practice against the Agile principles, to identify the extent to which Agile is already evident in how they produce online learning content. The Reflection Aide provides practical examples of what the implementation of each Agile principle could look like in the production of online learning content.

The Reflection Aide also defines three indicative levels of evidence:

- **High**: Much evidence that all the criteria are being met consistently and according to context.
- **Medium**: Some evidence that some or all the criteria are being met.
- **Low**: Limited evidence that any of the criteria are being met.

The learning output from the use of the Reflection Aide is captured and visualized in the Dashboard Assessment Tool, which is examined in the next section.
In part 1 (Questions 8-8a), participants were asked to what extent the suggested criteria enable effective identification of the Agile principles in practice, and which of the criteria requires the most “stretch” from what is practised now. Most comments were positive about the extent to which the suggested criteria of the Reflection Aide enable effective identification of the Agile principles in practice. However, one participant noted that ‘… for someone who is familiar with Agile practices plus has worked in teams that use those practices, the suggested criteria would make better sense than they did to me’ (Focus7). This suggests that practitioners would need a basic understanding of Agile if the toolkit is to be of any value. The tension here is with the intended purpose of the toolkit: to build a shared understanding of what Agile could look like in practice. The use of language was also picked up by another participant, to ensure its applicability to practice (Focus1) and another requested more emphasis on ‘the importance of continuous learning, practical reflection and routine retrospectives’ (Focus5).

Participants suggested there is a degree of stretch required in the implementation of most principles. Given the software focus of the principles, it may be difficult for people to connect this concept with the production of different forms of online learning
content: ‘Arguably, everything is software because it is produced in a digital format now, but I’m not sure you can directly apply them without modification. [For example,] the MVP [Minimum Viable Product] for an image or a reading has very different characteristics and considerations compared to the MVP of a digital activity’ (Focus5). This is particularly pertinent to Principle 7, whose interpretation was deemed ‘rather limited’ in that it should refer to the concept of an MVP and ‘fitness-for-purpose’ (Focus5). The participant offered a useful description of an MVP: ‘… the idea being that if you’re going for a gold standard product release but run out of cash half way, you can at least release a bronze standard and get some benefits, rather than have to change the release date and spend more money’.

This concept is a key feature of many Agile methodologies, such as Lean, however, as Focus5 notes: ‘… this principle really is about software - in which it’s easy to have a functioning widget without bells and whistles. I don't know how it applies to text and graphics’ – common features of online learning content. This raises a tension between the nature of the principles; that is, for improving practice in software development, and their potential application in an academic environment for producing online learning content that includes a variety of media.

Participants were then asked, as a practitioner, was there anything missing from the Reflection Aide that they would expect to see (Question 8b). Participants recognised how the Agile principles can inform relationships within a team but expressed an interest in how they could inform the ‘relationship between different teams’ (Focus7), and that ‘students are not the only stakeholders’ (Focus8). This suggests a need to clarify to whom the definition of “user” is applied.

To help build a consensus view on how best to develop the Reflection Aide, participants were asked to respond to a summary of the findings from Question 8, indicating whether they either agreed or disagreed with the points raised (Table 25).
Table 25: Building a consensus view on how to develop the Reflection Aide

<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Design of the aide is familiar; it provides a clear and helpful framework and breakdown of activities, if not clunky.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus8</td>
<td>Focus6</td>
</tr>
<tr>
<td>2. Principles could be reordered and grouped together according to the context. Most of the criteria apply well, but unsure how the software development roots translate to education.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus8</td>
<td></td>
</tr>
<tr>
<td>3. Principles are useful with some adaptation of language required, to ensure applicability.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td>Focus8</td>
</tr>
<tr>
<td>4. Meeting face-to-face builds better relationships, but in practice this is only possible or practical irregularly.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus8</td>
<td>Focus6, Focus7</td>
</tr>
<tr>
<td>5. Retrospectives are an important aspect of Agile, but this doesn’t come out clearly enough. Emphasise the importance of continuous learning and practical reflection.</td>
<td>Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td>Focus1, Focus8</td>
</tr>
</tbody>
</table>

Table 25 shows that consensus was reached on the statement that the principles are useful with some adaptation of language required, to ensure applicability. There was also a good level of agreement on the clarity and helpfulness of the framework and the need to better emphasise the importance of continuous learning and reflection. With regards to the ability to meet face-to-face to build relationships, there was some challenge that ‘meeting face to face is possible through commitment and sometime technology - not doing it is an excuse’ (Focus6). This suggests a tension between continuous communication as prescribed by Agile and a perceived unwillingness to try new ways of communicating. This could also be a reason why the Agile principle concerning communication was not ranked as highly important for increasing agility and collaboration (see Section 4.3.2).
To help build a consensus view on which criteria require the most stretch from what is practised now, participants were asked to respond to a summary of the findings from Question 8a, indicating whether they either agreed or disagreed with the points raised (Table 26).

<table>
<thead>
<tr>
<th>Agile principle</th>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous delivery</td>
<td>Lock down on earlier content prohibits ability to update to reflect later developments. Reference to 'analytics' seems too vague - better to describe this in more simple terms as needing to use 'data and evidence' to inform development and continuous improvement.</td>
<td>Focus1, Focus3, Focus4, Focus5</td>
<td></td>
</tr>
<tr>
<td>Embracing change</td>
<td>Limit/deadline by which the changes can still be implemented. Welcome changing requirements' – this will probably be the most significant change. Not clear to me how to effectively resource this at production scale across a matrix of specialists, presumably working simultaneously on multiple products and projects.</td>
<td>Focus1, Focus3, Focus4, Focus5</td>
<td></td>
</tr>
<tr>
<td>Iterative development</td>
<td>Use of software still in development.</td>
<td>Focus3, Focus4, Focus5</td>
<td></td>
</tr>
<tr>
<td>Staff collaboration</td>
<td>Unrealistic as many employers do not work a full week. 'Business people and developers must work together' - some academics may argue that they are neither of these roles.</td>
<td>Focus3, Focus4, Focus5, Focus8</td>
<td></td>
</tr>
<tr>
<td>Motivated teams</td>
<td>Team members who don’t contribute. 'Empowered to take decisions' – good explanations here. I would go further and state that effective Agile teams should be</td>
<td>Focus3, Focus4, Focus5</td>
<td>Focus8</td>
</tr>
</tbody>
</table>
Table 26 indicates a degree of difficulty in building consensus on which Agile-aligned practices would require the most stretch from the current experience of production. There was some agreement with all of the above points, and an additional insight that ‘production team members will usually also be working in other teams undertaking different roles and so managing this kind of portfolio working does not necessarily sit well with agile working within a single team’ (Focus3). This signals a clear conflict between Agile and current practice in that people are not dedicated to just production team; instead, they are members of multiple production teams. This could have consequences for individual and team capacity as well as for common practices, such as daily stand-ups. Participants also commented that ‘motivated does not always mean knowledgeable’ (Focus8), so the involvement of the right people with the right skills and expertise needs to be considered.
Dashboard Assessment Tool

To answer the next series of questions, participants were asked to review the Dashboard Assessment Tool feature incorporated within the three illustrative scenarios (Figure 22) that – together with the Reflection Aide – comprise the Agile toolkit.

Figure 22: The three scenarios taken from the Agile toolkit (source: author’s own)
Each scenario contains a narrative description of producing online learning content in which Agile principles are guiding practice, and an example Dashboard Assessment Tool that indicates the level of evidence of the Agile principles within that scenario. The levels are driven by the criteria from the Reflection Aide and are given a “RAG” status of red (low), amber (medium) and green (high). In these scenarios, practice is assessed against two key drivers for the implementation of the Agile philosophy within the production of online learning content:

- Increased agility and responsiveness
- Increased collaboration

The three scenarios are designed to represent a time continuum, from the present - alignment with Agile principles (walking scenario), short-term - adoption of the Agile principles (running scenario), and long-term - adaptation of the Agile principles (sprinting scenario). This implies a maturing of practice over time, to allow for culture to change and grow accordingly. An evaluation of the narrative description feature of the scenarios can be found in the next section.

As part of the review of the scenarios, participants were asked to evaluate the concept of a Dashboard Assessment Tool (Figure 23), to capture the assessment of practice against the criteria set out in the Reflection Aide. The Tool could then be used to identify those Agile-aligned actions and behaviours that need to be amplified and/or those that need further alignment with the Agile principles.
Figure 23: Example of the Dashboard Assessment Tool (source: author’s own)

Question 9 asked participants to consider how useful a Dashboard Assessment Tool is for capturing and determining aspects of practice that require change. All comments regarding the usefulness of the Dashboard Assessment Tool were positive, with some participants acknowledging it reflected their practice (Focus1, Focus3). Suggestions for improvement were also offered (Focus1, Focus5).

It was explained to participants through the focus group material they received (see Appendix 10) that the Dashboard Assessment Tool would be redeveloped, based on their feedback, to contain guidance on how to implement the Agile principles in order to improve agility in practice (Figure 24).
**Agile principles dashboard**

<table>
<thead>
<tr>
<th></th>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.</td>
</tr>
<tr>
<td>2</td>
<td>Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.</td>
</tr>
<tr>
<td>3</td>
<td>Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.</td>
</tr>
<tr>
<td>4</td>
<td>Business people and developers must work together daily throughout the project.</td>
</tr>
<tr>
<td>5</td>
<td>Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.</td>
</tr>
<tr>
<td>6</td>
<td>The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.</td>
</tr>
<tr>
<td>7</td>
<td>Working software is the primary measure of progress.</td>
</tr>
<tr>
<td>8</td>
<td>Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.</td>
</tr>
<tr>
<td>9</td>
<td>Continuous attention to technical excellence and good design enhances agility.</td>
</tr>
<tr>
<td>10</td>
<td>Simplicity—the art of maximizing the amount of work not done—is essential.</td>
</tr>
<tr>
<td>11</td>
<td>The best architectures, requirements, and designs emerge from self-organizing teams.</td>
</tr>
<tr>
<td>12</td>
<td>At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.</td>
</tr>
</tbody>
</table>

The common barriers to implementation are...

---

**Figure 24:** The proposed redeveloped Dashboard Assessment Tool (source: author's own)

To support the next iteration of the Tool, they were asked how effective they thought the fully developed tool, complete with guidance, will be for supporting the implementation of the Agile principles within practice (Question 9a). The responses provided by participants questioned whether the system of rating practice against the Agile principles is ‘proving the principles are good and therefore what we have now is bad’ and ‘self-fulfilling’ (Focus1). Interpreting the data from the workshop, it is probable that practitioners will already be working in an Agile-aligned way to some degree; that is, they would not be starting from a deficit position.

The inclusion of a RAG status did raise another tension in that ‘an initial table full of red indicators could be quite off-putting, psychologically’ (Focus5), which plays to the previous point. In terms of the next version of the Agile toolkit, this feedback confirmed a need for an appreciative positioning – drawing on the workshop method - of the
Dashboard Assessment Tool, to prevent it from being perceived as a negative critique of current practice.

Participants were then asked, as a practitioner, what types of guidance for implementing change they would expect to see (Question 9b). A range of suggestions were offered by participants, from actual practices (‘focus groups’, ‘mentoring’) to examples of practice (‘positive stories’). In addition, a belief surfaced that ‘cultural and organisational change’ is needed before practice can be expected to change (Focus3). This highlights a tension between an assumption that an organisation can change without an intervention and the toolkit as a potential intervention. It could also be evidence of an unwillingness to change by suggesting that such an organisational feat is needed before a change in practice can occur. This sentiment was echoed by other participants regarding how to get people to commit to working in the same way (Focus2).

To help build a consensus view on the usefulness of the Dashboard Assessment Tool for capturing and determining aspects of practice that require change, participants were asked to respond to a summary of the findings from Question 9, indicating whether they either agreed or disagreed with the points raised (Table 27).

Table 27: Building a consensus view on the usefulness of the Dashboard Assessment Tool

<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The tool is nice, simple and useful, especially when starting up a new team.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>2. Useful tool to help identify levels of engagement and as a means for comparison.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>3. Use of phases (walking, running, sprinting) is helpful, if they can be adapted into becoming part of the team’s language.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>4. Own experience was recognised in the first scenario; able to see the progression through the three scenarios.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6</td>
<td></td>
</tr>
<tr>
<td>5. Trust is a key component. If trust is given, there may not be a need for regular daily and face-to-face</td>
<td>Focus1, Focus3, Focus4, Focus5</td>
<td>Focus6, Focus7</td>
</tr>
</tbody>
</table>
Table 27 shows that consensus was reached on the use of phases (walking, running, sprinting) as a helpful component of the Dashboard Assessment Tool, but only if they can be adapted into becoming part of the team’s language. Both Focus6 and Focus7 disagreed with the statement that trust is a key component, either in not understanding how it relates to this section of the toolkit or to the idea of daily, face-to-face communication.

To help build a consensus view on how effective they think the fully developed tool, complete with guidance, will be for supporting the implementation of the Agile principles within practice, participants were asked to respond to a summary of the findings from Question 9a, indicating whether they either agreed or disagreed with the points raised (Table 28).

Table 28: Building a consensus view on the effectiveness of the fully developed tool

<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It has the potential to be effective but needs to come across as a guide rather than a “sales pitch”.</td>
<td>Focus3, Focus5, Focus8</td>
<td>Focus6, Focus1</td>
</tr>
<tr>
<td>2. Effectiveness is dependent on the buy-in from and level of understanding of teams. The wider picture should be considered.</td>
<td>Focus3, Focus4, Focus5, Focus6, Focus8</td>
<td>Focus1</td>
</tr>
<tr>
<td>3. Being presented with a table of red indicators could be quite off-putting at the start.</td>
<td>Focus1, Focus3, Focus5, Focus8</td>
<td>-</td>
</tr>
<tr>
<td>4. The three scenarios can be seen as highlighting different aspects of the principles. Can these different aspects of the principles carry their own RAG rating to show</td>
<td>Focus1, Focus3, Focus5</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 28 shows it was not possible to reach consensus on any of the individual points regarding the effectiveness of the tool. Most participants agreed that effectiveness is dependent on the buy-in from and level of understanding of teams, and specific guidance will enable it to be effective at an individual and group level. It was also suggested that ‘the language needs to change to make it appropriate for us in a UK context and an educational context’ (Focus3), which highlights a tension between the origin of Agile and its possible application in a different context. There was some conflict in opinion about point number one, with both Focus1 and Focus6 disagreeing that the tool comes across as a “sales pitch” and Focus8 stating they were ‘neutral’ in this respect. This is pertinent to how the toolkit is positioned with practitioners, particularly in setting expectations around what Agile can and cannot achieve.

To help build a consensus view on what types of guidance for implementing change would they expect to see, participants were asked to respond to a summary of the findings from Question 9b, indicating whether they either agreed or disagreed with the points raised (Table 29).

Table 29: Building consensus on expected types of guidance for implementing change

<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cultural and organisational change is needed first. Guidance can be offered in more ways than just the written form; e.g. modelling and sharing of knowledge is also useful.</td>
<td>Focus1, Focus3, Focus4, Focus5</td>
<td>Focus8</td>
</tr>
<tr>
<td>2. Include examples of how things have been put into practice that the team can choose from, as well as positive stories that show</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>Practical Benefits</td>
<td>Focus Sessions</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>3. Include questions to ask of the team at the start and when reviewing the process.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7</td>
<td></td>
</tr>
<tr>
<td>4. Include a FAQ section to provide further support; focus groups and mentoring.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7</td>
<td></td>
</tr>
<tr>
<td>5. Include guidance on how to get everyone to commit to working in a similar way, and to an understood vision.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>6. Provision for personal action plans that are linked to group/team/institutional plans.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus7</td>
<td></td>
</tr>
</tbody>
</table>

All participants reached a consensus that the inclusion of examples of how things have been put into practice, as well as positive stories that show practical benefits would support change. There was some conflict in opinion in relation to point number 1 with the assertion that the toolkit ‘is cultural and organisational change - so waiting for [it] would be pointless’ (Focus8). This suggests that there is a belief that the University needs to be “fixed” prior to any additional change in ways of working.

Likewise, there was some disagreement with point number 5 in that ‘if someone needs guidance on ‘how to get everyone to commit’ to something they have missed the point. Commitment comes from the people it cannot be imposed on them…’ (Focus6). Point number 5 surfaces a tension with Agile, which requires motivated and empowered people to work towards a shared goal. The responses of participants could be attributed to a traditional, hierarchical approach to leadership; that is, someone in a leadership position is responsible for the team pulling together.

**Narrative descriptions**

In addition to the example Dashboard Assessment Tool feature, the scenarios contain a narrative description of producing online learning content in which Agile principles are guiding practice (Figure 25). Participants were asked to consider to what extent the descriptions offer a reasonable explanation of how practice could look and feel if the Agile principles were implemented. Each description is accompanied by a quote taken
from participants within the face-to-face collaborative workshop. All three narrative descriptions can be found in Appendix 10.

This scenario emphasises the current process, product, practice and people aspects of the design and development of online learning content that colleagues value.

A consistent and enthusiastic team is brought together to design and develop new online learning content. All roles and responsibilities are respected, agreed and made clear at a start-up meeting. A Project Manager works with a faculty-based Chair to provide strong leadership and management ensuring the team have a shared understanding of the process and how to escalate risks and issues. Some specialist roles, such as an Editor, are continuous throughout production. Additional expertise and knowledge is pulled in as and when required.

The team take a light-touch approach to Learning Design in order to gain a common understanding of the purpose of the learning content, its prospective students, and how it will be produced. This is supplemented with data analytics to help understand student behaviour. Ample time is provided for upfront planning and scheduling (e.g. specification), to minimise the need for change. Ample time is also provided for the drafting process, with extra built in for reviewing and rewriting – sometimes with visual mock ups. The quality of learning content is assured through developmental testing with students, the Editor and critical readers.

Some of the team communicate regularly through face-to-face meetings or through serendipitous conversation. Collaborative relationships are built over time due to the stable team structure. Documentation is stored centrally, either on a server or a shared online workspace.

“People care and are enthusiastic so go the extra mile”

Figure 25: Narrative description taken from scenario one “Walking” (source: author’s own)

For Question 10, participants were asked to consider to what extent the narrative descriptions offer a reasonable explanation of how practice could look and feel if the Agile principles were implemented. Most participants responded favourably to the question, with some suggestions on how the narrative descriptions could be improved (Focus5, Focus6). However, there was some expression of concern that they are ‘confusing’ and ‘complicated’ (Focus6, Focus7), suggesting more attention needs to be paid to guidance on how these are to be used as part of the overall toolkit.

Question 10a then asked participants, as a practitioner, how useful the narrative descriptions are for supporting discussion and decision making on adopting Agile. The data indicate that most participants agreed that the narrative descriptions are useful for
supporting discussion and decision making on adopting Agile. However, the inclusion of questions could further support this purpose (Focus1). It was also observed that ‘even when sprinting, it’s not all green indicators’ (Focus5) which they felt was a ‘very real world approach to a model’. This suggests the toolkit is reflective of “real” practice and not and “ideal” practice.

To help build a consensus view on the extent to which the narrative descriptions offer a reasonable explanation of how practice could look and feel if the Agile principles were implemented, participants were asked to respond to a summary of the findings from Question 10, indicating whether they either agreed or disagreed with the points raised (Table 30).

<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The descriptions do offer a reasonable and useful explanation, with an emphasis on key words. However, they are too general, more detail is needed.</td>
<td>Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td>Focus1</td>
</tr>
<tr>
<td>2. The transitional phases (walking, running, sprinting) are a nice metaphor.</td>
<td>Focus3, Focus4, Focus5, Focus6, Focus8</td>
<td>Focus1</td>
</tr>
<tr>
<td>3. Could make more of the aligning, adopting and adapting references.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus8</td>
<td>Focus8</td>
</tr>
<tr>
<td>4. Imagery and layout are nice, but confusing.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>5. Would like to see means of assessing the statements in the narrative description; comes across as a complicated health check</td>
<td>Focus3, Focus4, Focus5, Focus6, Focus8</td>
<td>Focus1</td>
</tr>
</tbody>
</table>

Consensus was reached regarding the imagery and layout. Focus7 stated that although they agree the descriptions are too general, they wouldn’t expect the tool ‘to be very specific as this could make it prescriptive’. They also agreed that the layout was
confusing but added that they did not ‘have an example from experience as a reference point to make a comparison’.

To help build a consensus view on how useful the narrative descriptions are for supporting discussion and decision making on adopting Agile, participants were asked to respond to a summary of the findings from Question 10a, indicating whether they either agreed or disagreed with the points raised (Table 31).

<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inclusion of questions to accompany the scenarios would be useful; some indication of how you evidence the emphasised statements would add value</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7</td>
<td>Focus8</td>
</tr>
<tr>
<td>2. Good for starting and supporting discussion around Agile, culture and change</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>3. Offers a “real world approach” to a model in that it takes time to change; Agile is about continuous improvement</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus8</td>
<td></td>
</tr>
<tr>
<td>4. The narratives are software-focused even though Agile is used in other contexts</td>
<td>Focus3, Focus4, Focus5, Focus7, Focus8</td>
<td>Focus1, Focus8</td>
</tr>
</tbody>
</table>

Table 31 shows that consensus was reached on the narrative descriptions being good for starting and supporting discussion around Agile, culture and change. On the inclusion of questions, participants commented that ‘the statements are fine without the addition of questions - evidenced scoring or no scoring would be best’ (Focus8), which perhaps betrayed some confusion around the relationship between the scenarios and the Reflection Aide. They also added that ‘it is friendly and encouraging to see that there is a path to implementation of a fully agile environment and that it is not expected in one sudden move’ (Focus8), suggesting that an incremental approach to change is more favourable than a “big bang”.

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4.3.4 Conflicts and tensions with implementation

Question 14 asked participants what they felt are the main barriers to implementing any or all of the Agile principles within the production of online learning content. The data illustrate a range of perceived barriers to the implementation of the Agile principles in practice. The majority of comments centred around “people” in terms of “culture” (‘baggage’, ‘silos’, ‘change’) and working in “teams” that are ‘large’, ‘disparate’ and where there is a perceived ‘lack of trust’. Focus5 offered an interesting insight into the positioning of Agile within the University context: ‘the university has been talking about applying agile to everything for a few years now, like some magical panacea. This has probably done some damage to the expectations and image of agile.’ This strengthens the rationale for including narrative descriptions within the Agile toolkit as a means to manage expectations around what Agile looks like in practice.

To help build a consensus view on the main barriers to implementing any or all the Agile principles within the production of online learning content, participants were asked to respond to a summary of the findings from Question 14, indicating whether they either agreed or disagreed with the points raised (Table 32).

<table>
<thead>
<tr>
<th>Summarised responses</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cultural change, historical baggage and the ability to learn new ways of working.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6</td>
<td></td>
</tr>
<tr>
<td>2. Lack of trust and the inability to guarantee enthusiasm or commitment.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus8</td>
<td></td>
</tr>
<tr>
<td>3. Disparate, large teams, and teams where not all members are “team players”.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6</td>
<td>Focus8</td>
</tr>
<tr>
<td>4. No shared understanding of the same agenda, nor of the “output”.</td>
<td>Focus1, Focus3, Focus4, Focus5, Focus6, Focus7, Focus8</td>
<td></td>
</tr>
<tr>
<td>5. Working in silos and the lack of time for daily and/or face-to-face meetings.</td>
<td>Focus3, Focus4, Focus5, Focus6, Focus8</td>
<td>Focus1, Focus7</td>
</tr>
</tbody>
</table>
6. Competing processes running to different timescales.  Focus1, Focus3, Focus4, Focus5, Focus6, Focus7

7. Incompatible software systems or tools that are not fit for purpose.  Focus1, Focus3, Focus4, Focus6, Focus7  Focus5

8. Agile exhaustion – there has been a lot of talk about it already; Agile works in some situations, not others.  Focus1, Focus3, Focus4, Focus5  Focus6

Consensus was reached on having no shared understanding of the same agenda, nor the output as a main barrier to implementation; that is, what is being done and why. Conflicts in opinion were evident in relation to point number five and point number seven as ‘software doesn't drive culture or process change’ (Focus5); that is, people do. When asked if anything was missing that they would have expected to see, participants expressed ‘leadership’ (Focus6) and ‘a lack of communication internally’ (Focus7) which could be interpreted as an expectation based on previous experience of change within the institution.

4.3.5 Summary of analysis for RQ2

Whereas Section 4.2 used the concept of an activity system as a unit of analysis to answer RQ1, this section emphasised the notions of conflict and tension within Activity Theory to address RQ2: How can learning organisations implement Agile principles and practices within the production of online learning context?

In answering RQ2, several tensions were surfaced through analysis of the focus group data. Flexibility and the ability to work with different colleagues was valued, but variance in team sizes and ways of working were also felt to be an issue with current practice. There was consensus on the importance of reflection and continuous improvement for increasing agility and collaboration and driving change, but little or no evidence of reflection in current practice. This is pertinent as the toolkit is a mechanism with which to structure and guide reflection – the challenge for implementation will be with practitioners valuing it enough to create space in their own practice to use it. Also, the ability to communicate face-to-face was seen as important for building relationships, but, did not occur regularly in current practice (either because of avoidance or lack of
availability). Also, as a principle, face-to-face communication was seen as not as important for increasing agility and collaboration and driving change. This is an interesting conflict in terms of building relationships and collaboration.

### 4.4 Recommendations for developing the toolkit

Following the evaluation of the Agile toolkit and an analysis of the results, it was possible to distill the feedback into a set of recommendations on which there was a consensus. These recommendations are discussed in relation to the redevelopment of the Toolkit in *Chapter 5: Findings and discussion*.

Recommendations for the Reflection Aide:

- **Recommendation 1**: Adapt some of the language of the Principles, to ensure applicability.

- **Recommendation 2**: Consider production team members who usually work in other teams, undertaking different roles.

Recommendations for the Dashboard Assessment Tool:

- **Recommendation 3**: Retain the use of phases (walking, running, sprinting).

- **Recommendation 4**: Include specific guidance to encourage buy-in and understanding from teams.

- **Recommendation 5**: Include examples of how things have been put into practice, as well as positive stories that show practical benefits.

- **Recommendation 6**: Incorporate the main barriers to implementation:
  - No shared understanding of the same agenda, nor of the “output”\(^{10}\).
  - Cultural change, historical baggage and the ability to learn new ways of working.
  - Lack of trust and the inability to guarantee enthusiasm or commitment.
  - Disparate, large teams, and teams where not all members are “team players”.
  - Working in silos and the lack of time for daily and/or face-to-face meetings.
  - Competing processes running to different timescales.
  - Incompatible software systems or tools that are not fit for purpose.

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\(^{10}\) There was consensus on this point however, as the participants have expressed the others as barriers they have faced in their experience, they have been included.
Agile exhaustion and the application of Agile to all situations.

Recommendations for the Narrative descriptions:

- **Recommendation 7**: Keep the imagery and layout simple.

Recommendations for the Agile principles:

- **Recommendation 8**: Emphasise principles that are highly important for improving agility:
  - Reflection and learning
  - Embracing change
  - Staff collaboration
  - Motivated teams
  - Simplicity

- **Recommendation 9**: Emphasise Principles that are highly important for increasing collaboration:
  - Reflection and learning
  - Staff collaboration
  - Motivated teams
  - Self-organisation
  - Embracing change

- **Recommendation 10**: Emphasise Principles that are a high priority for driving change:
  - Reflection and learning
  - Continuous delivery

## 4.5 Conclusion

The purpose of this chapter was to present the range of data generated from the three methods used, in answer to the research questions posed by this study. To support the exploration of RQ1 (Which current online production practices align with the Agile principles?), three sub-questions were designed (see *Chapter 2: Literature review*):

- To what extent does online production practice differ between and within organisations?
- To what extent has Agile been adopted in practice?
- What is the gap between current practice and future Agile-aligned practice?
The structured interviews and the face-to-face collaborative workshop produced data that enabled the identification of diverse practices between and within education and education-related organisations, including the OU. Using the data, it was possible to align those practices with the Agile principles and to identify those practices that contrast with them (see Section 4.2.4). This helped to determine the extent to which Agile has been adopted across multiple settings. The use of an Appreciative Inquiry-based approach enabled the articulation of a desired future state of practice at the OU (see Section 4.2.3). The findings from the data suggest that the gap between current and future practice is variable (see Section 4.2.4), and the use of the Agile toolkit will help practitioners to determine their own gap through a reflective assessment of practice.

To support the exploration of RQ2 (How can learning organisations implement Agile principles and practices within the production of online learning context?), one sub-question was designed:

- How can individual practitioners implement Agile principles in practice?

The online focus group produced data that contributed insight into how practitioners within education organisations can implement Agile principles within their production context. The Agile toolkit that has been developed throughout the study is the principal mechanism for this implementation. By positioning its creation and development as central to the research, the toolkit has effectively been designed by practitioners for practitioners. How the focus group recommendations have informed the next version of the toolkit, and how the learning theory that underpins this research further guides the implementation is discussed in Chapter 5: Findings and discussion.

From this perspective, the design of the study was able to generate data to address the research questions and deliver outputs. The purpose of the next chapter is to consider the meaning, significance and relevance of the findings from these data in relation to the literature review (see Chapter 2: Literature review) and the research study itself.
Chapter 5. Findings and discussion

5.1 About this chapter

The previous chapter shared the analysis of the data generated through the three research methods used: the structured interview, the face-to-face collaborative workshop, and the online focus group, and determined the extent to which the findings address the research questions. The purpose of this chapter is to discuss the meaning, significance and relevance of the findings from the analysis for the research and the current understanding of Agile in HE and the perceived issues with “traditional” design models. Where relevant, this chapter discusses whether the research questions support, extend or diverge from the current understanding explored in Chapter 2: Literature review. This chapter also provides a reflection on how the findings at the various stages of the research process have informed the iterative development of the Agile toolkit.

5.2 Restating the problem

As Chapter 1: Context and rationale has shown, the real-world problem the research was designed to address is universities are designed and structured in a way that makes it difficult for them to respond quickly to meet the challenges and opportunities afforded by a changing context. The focus of this research was on how agility can be supported and improved in one area of a university’s business: the production of online learning content. The catalyst for this improvement is the philosophy that underpins methods commonly used in software development today. These Agile methods have been shown to reduce the time it takes to develop and deliver a product to market – a key success factor in an increasingly competitive environment.

The research sought to determine the extent to which the Agile philosophy could be implemented within a university online learning production environment through the exploration of two research questions: Which current online production practices align with the Agile principles? (RQ1), and How can learning organisations implement Agile principles and practices within the production of online learning context? (RQ2). The results presented in Chapter 4: Data analysis show that there are elements of current practice, inside and outside of the OU, that already align with the Agile philosophy and there are elements that require change, to further implement all the Agile principles. The
Agile toolkit that has been developed throughout this study is positioned as an intervening tool with which to assess and guide this implementation.

5.3 Diversity of production practice

Taking an external perspective of “production” has surfaced similarities and differences between organisations which indicate a diversity of practice in education and education-related organisations. This diversity could influence the application of the findings in different settings, and therefore it is necessary to consider how the research outputs can accommodate this. Although, one interview participant acknowledged that ‘the difference between an open university, a distance teaching university, and a regular university is becoming smaller’. Diversity is not necessarily a bad thing; the literature has shown that a variety and diversity of practices are still necessary (Fowler and Highsmith, 2001), as each project and project team are different. To help bridge this diversity of practice, this section identifies and discusses any themes that are common to a range of organisations.

5.3.1 Issues and benefits

Referring to Janssen’s (2000, p.289) notion of innovative work behaviour serving ‘as a problem-focused coping strategy’, the research set out to determine what practitioners perceive to be the “problem” of producing online learning content in their contexts. Asking what the research participants felt were the issues they faced with their current way of working, it is possible to articulate the problem and therefore assess the extent to which an Agile-aligned way of working can be a solution.

Process maturity

Unlike the OU, where there is a high degree of both project management and process maturity, the majority of external organisations interviewed do not prescribe to a specific project management methodology but do follow a form of “production process” (see Table 35 in Appendix 13). Given that Agile can be defined as a form of project management (Lexico.com, 2019), this suggests a variable gap or “problem” between current practice and future, Agile-aligned practice; that is the maturity of an organisation in project management may affect the ability to adopt a new process or way of working.
Mature organisations may find it easier to adopt a new process, but, culturally, they may have become so entrenched in their current practice that it is difficult for them to shift to a new one. In this sense, less mature organisations may find it easier to adopt a new process in lieu of not having anything, but the cultural change required remains a challenge. This echoes the point made by Striebeck (2006, p.2) about Google, where an attempt ‘to introduce a process in a start-up environment […] often meets resistance. Because of the googley way of developing software, many engineers simply do not believe that any formal process can have a benefit but will only slow them down’. Universities may have a mixed reception to the introduction of a new production process. On one hand, some may resent the perceived bureaucracy inherent in them while, on the other, some may welcome new forms of management and assurance.

**Agile maturity**

From the data, it was possible to determine that where there is a specific process, there is evidence of more tools and practices in use. Only one organisation - the UK-based education-related organisation (**Interview4**) - has explicitly chosen to adopt an Agile method – the project delivery framework, DSDM. The result of this is the broad range of staple Agile methods, practices and tools, such as design sprints, daily stand-ups and MoSCoW prioritisation that can be drawn on during production. It is worth noting that this was the only non-university organisation represented in the sample population, and their mode of delivery is entirely online. However, they have still experienced the same issues of working within a strong project culture:

‘… what we recognised was that projects of that nature take 6-8-12 months to deliver and technology back then, even now, changes so much in that period of time that the things that were the best thing to do when you started wouldn’t be the best thing to do, not only when you’ve finished, but even along the way. You can see actually there’s a better way of doing this but there’s a plan, and we’ve got to stick to the plan. So, the way we solved it was […] actually, what you’ve got with Agile is an opportunistic methodology, something that allows you to capitalise on new information partway through the project.’

What is evident in **Interview4**’s description of production practice is the issue of the cultural mind shift required to move from a “waterfall” methodology to an Agile one. He suggests two ways for enabling this to happen:
‘One is to say, “Actually we’ve got more chance of succeeding if we allow the way that this thing is used to tell us what the important things about it are”. So, we don’t go in with the view that we know what the answer is. We would go in with the view that we have a process for getting to the answer […] if you buy into the process then you will come out with better outcomes.

‘And the second thing is when they have their vision, they’re thinking “Well, I want a big, sort of, grand unveiling moment where I can step aside and go Ta-Dah!” The best thing to do is to do the least… what we call the “Minimum Viable Product”.

There is a potential tension between the first point about reconsidering project management and being ok with “not knowing the answer”. On one hand it supports the literature in that design and planning up front can limit the ability to respond to unpredictable events (Sweeney and Cifuentes, 2010); on the other it contrasts with what some participants in the workshop desire for the future state of practice at the OU; that is, allowing enough time for upfront planning as it ‘makes [the] actual production smoother as little change is needed’. This signals consideration is required to help support people, particularly project managers, to ‘buy into the process’, as Interview4 states.

The concept of a Minimum Viable Product (MVP) is common to Agile methodologies, and while it will not be a highly polished product, Interview4 argues it is ‘a test of your assumptions of what it is, what is the essence of the service that your audience or your consumers value’. From an organisational perspective, producing a product that is “good enough” rather than “gold standard” will free up resource and provide the organisation with more ‘flexibility and the ability to respond to changing circumstances’. This was an understanding shared by one of the participants in the online focus group (Focus5), who also raised the question of how far the concept can apply to different types of media, such as text and graphics.

However, as Interview4 notes, the concept of an MVP is difficult to sell to colleagues who are used to having ‘a vision in their head’ of what the end product will be. Along with the levels of process maturity, this finding is significant for the toolkit in that the implementation of an Agile-aligned practice is positioned along a time or “maturity” continuum, indicating that change in culture and behaviour takes time and teams within different organisations will start at different points along the continuum.
Although it is not a prescribed Agile method, Interview5 (a senior eLearning specialist within a traditional campus-based university in the UK) describes her Learning Design framework as ‘agile’ in that it enables people to revisit the design during the development of a course. She acknowledges that her production process draws on team-based development and this is evident in the collaborative methods, practices and tools she advocates:

‘I reckon that 90% of my work happens at that two-day workshop, and that’s a big cultural shift away from the development of content - sending some stuff to your learning technologist on a Friday afternoon for Monday […] I am delighted for the opportunity for learning technologists [to be] sitting at the academic table and bridging the gap between the two.’

While this production practice appears, perhaps unintentionally, to draw on the Agile ethos, it is only an optional process. Interview5 describes that this is fundamental to its success:

‘I'm spoilt because I'm doing [workshops] for people who want to be there […] The reason being there completely changes […] the programme director is there, and all the support people around the table, and they are concentrating on their course.’

Providing dedicated space and time to work through the design of a course has yielded other benefits according to Interview5 as she can now run one workshop for four different courses across multiple disciplines:

‘The first time that I ran it [I had] a postgraduate online course and an undergraduate on-campus course from two different subject areas. That couldn’t have been more different! They have plenty in common, and in most of the steps they comment on each other’s […] It was really inspiring because you get this cross-fertilisation from a distance and it’s wonderful.’

While this account suggests a level of unintentional Agile maturity in practice in that it draws on the concepts of iterative development and collaboration, there is an inherent problem, even if the participant labels it as a benefit: it is an optional way of working. Considering this alongside the finding that familiarity of Agile (the philosophy and/or methods) is more common at a local level, rather than at an organisational level, echoing some of the issues raised by Plonka et al. (2014) in their account of running Agile in non-Agile environments, there is a need to consider different levels in the
maturity and conscious application of the Agile principles; that is, practitioners are likely to be already working to some principles without realising. This is significant in relation to the methodology applied to the workshop; that is, the use of an Appreciative Inquiry-based approach to provide space and time to reflect on practice now, to generate evidence of practice that may align with Agile.

Moving to online production
Since its inception, the OU has adopted a production model primarily based around printed learning materials (Bates, 1995; cited in Weller and Anderson, 2013, p.58). It was interesting to see that the experience of shifting from print to online is shared with other universities, particularly in relation to the resultant processes that have not evolved along with the change in delivery.

The description of practice offered by Interview2 (an Associate Dean within a non-UK public research university) is that of a ‘waterfaller’; that is, it follows a linear sequence. This corroborates the experience of a ‘very waterfall’ process within the OU (Focus5) and that within the published literature (Kamat, 2012, p.231). There is a dedicated project manager and the project is structured using a Gantt chart. However, unlike a traditional project management methodology, staff do not follow a plan which results in the temptation to add ‘gloss’ with no pedagogical basis:

‘Some of our higher executive, I’m afraid, really have that view of online learning: it needs to be very glossy. But it doesn’t necessarily attract students and it doesn’t engage students unless there is a pedagogical basis underlying the gloss. It often detracts more than anything else from the experience because there’s no depth or breadth provided; it’s just simply on a two-dimensional level of the other resources being added. So there needs to be a plan; it needs to be […] I’ve said aligned to learning outcomes, and it needs to be very much driven by that knowledge that both staff and students have of the environment in which they are learning and teaching.’

This differs from the case of Interview4, where the inclusion of an MVP reinforces the idea of “good enough”. Interview2 attributes this temptation to ‘gloss’ to the level of understanding of teaching staff as to what can be achieved online. He notes that while many of the academic staff are an expert in a disciplinary field, they have little or no pedagogical training, and due to pressures of workload, there is little time available for professional development. Also inherent in his description of practice is the lack of
shared understanding of what adds value to the student experience in terms of teaching content. Without a shared understanding of the end product, it would not only be difficult to motivate and stimulate the self-organisation of teams, it would also be difficult to plan iterative development and continuous delivery because there may not be a unified understanding of what is needed and by when.

Both Interview1 (a learning designer within a non-UK distance education university) and Interview3 (a senior technology-enhanced learning specialist within a non-UK open university) note a ‘transition’ within their production practices. Interview1 notes that they are transitioning from their ‘legacy setup’ of a correspondence model to one of online delivery. She explains that this has required re-educating people about the role of Learning Design and what can be accomplished in the online environment. In doing so, she highlights one challenge:

‘The people on the team weren’t really trying to replicate the classroom in our case because it was always a distance education institution. What they were trying to replicate was the print delivery method.’

This is evident in the roles required during the production process and the process of using a Word document to drive development:

‘The main tool is a Word document. The courses are still kind of written as a Word document, and edited as a Word document, and then placed into HTML or added to a quiz or translated into some sort of video or animation. That’s our main communication tool or development tool.’

The issues of this ‘relay race’ handover are the amount of time it takes and the inability to make changes to content once it has passed through specific editorial or production stages. This idea of ‘relay race’ is also common to the experience of practitioners within the OU. Nevertheless, with the support of learning designers, more faculties are exploring development directly within the online environment where they have more control over the content:

‘It’s becoming more flexible; people are starting to understand better that it should be more of an iterative process. You can’t figure everything out ahead of time; that you get a much better outcome in many cases if people are allowed to revisit what they’ve done.’
While increased autonomy does have its benefits, it also provides challenges:

‘…now each faculty is deciding about their own process and their own way of doing things to a greater extent […] the [production] teams are sort of dedicated to a faculty too […] even though we try to keep communication, maintain communication and cross-fertilisation, that doesn’t always happen.’

**Interview3** notes that they changed their educational model a few years ago so it is more aligned with that of a traditional face-to-face university. Prior to this there was a very ‘strict procedure’ to produce a course. Although, today, there is no structured process, production takes considerably less time. Like **Interview3, Interview1** notes that faculties have become more independent ‘like faculties in an ordinary university’, and when new staff are hired from ‘regular universities’ they continue to use the methods they adopted there ‘without realising that our students are different’.

**Interview5** talks about the change in description of their provision from “distance” to “online”, which represents a shift in their culture:

“Online learning” is kind of a new word. The word “distance” was dropped and that really changes what we are doing because “online distance” has one set of values and culture; “online learning” has kind of a different set […] a lot of people were not happy that the word “distance” was taken out. Online learning then becomes a bit of a mix of on-campus, online MOOCs, all of these kinds of things.’

This shift is also evident in her practice: ‘I reckon that 90% of my work happens at that 2-day workshop and that’s a big cultural shift away from the development of content.’

**Focusing on the user**

When asked about the alignment of Agile to the organisation’s values, **Interview4** comments that there was alignment in that ‘we put the audience first and that’s one of the [the organisation’s] five values.’ There is a clear alignment here with the organisational culture and the Agile philosophy in which the user is central. This theme is picked up by **Interview5** who describes how her Learning Design workshop activity addresses learning outcomes, assessment and feedback from the perspective of the student view with the aim of improving the student experience.
Cultural change

The literature review surfaced arguments for viewing the Agile philosophy as more than a set of rigid rules to follow (Willeke, 2011); it is a way of being (Highsmith, 2009; Hohl et al., 2018; Sommer, 2019). This study has corroborated this argument by surfacing aspects of culture and behaviour that need to change for a successful implementation of the Agile principles. The perceived cultural shift required was raised during the discussion in the workshop; that is, it was felt that the culture needed to change first, to become conducive to an Agile-aligned way of working, as argued by Highsmith (2009) and Sommer (2019). But there was a concern that ‘we underestimate the impact that culture has’. Another participant expanded on this by stating that ‘until we break down the silos’, true collaboration across the University will always be a challenge.

To transform culture at an organisational level is a challenge (Brown, 2014), and beyond the scope of this research. However, if this finding is viewed through the lenses of the culture frameworks offered by Handy (1999) and Livari and Livari (2011), it is probable that multiple cultures are existing within the same organisation, which provides scope to influence and shape a production context that is supportive of Agile. The Agile toolkit in this respect can be viewed as an ‘organizational framework’ to promote agility ‘within certain boundaries’ (Highsmith, 2009). The challenge now is in changing the passive stance of practitioners “waiting for the culture to change” to one that is actively “changing the culture”.

Another aspect of culture and behaviour that surfaced from the analysis of the results is “trust”. Trust is fundamental to the fifth Agile principle (motivated teams), and Fowler and Highsmith (2001) argue that ‘Agility is all about trusting in one’s ability to respond to unpredictable events…’. Similarly, Striebeck (2006, p.2) shares that a ‘big part of Google culture is trust’. At the OU, the Minerva project (Sharples et al., 2017, p.4) also identified a need to ‘build trust’, to explore new ways of working. This suggests trust, as a concept, is important and the research supports this assertion by signaling its absence from current practice. However, even when Agile has been adopted, such as in the case of the UK-based education-related organisation (Interview4), there is evidence that the ability to “embrace change” can impact on developing trust between partners in different functional areas who are used to ‘things being known’.
From a professional learning perspective, this research appears to diverge from Weller and Anderson’s (2013) argument that society places the responsibility for skill development on the learner. The data suggest that participants are aware of cultural issues, but do not necessarily perceive it is down to them to resolve them. The use of the Agile toolkit can therefore be viewed as one way in which to stimulate change, so the culture begins to reflect the Agile mindset (Willeke, 2011; Sommer, 2019).

5.4 Evidencing Agile principles in current practice

Building rich descriptions of practice enabled an assessment of which Agile principles were more commonplace within production, and which were less visible, or not visible at all. Table 18 (Section 4.2.4) maps production practices to one or more Agile principle, either because it is in alignment with the sentiment, or in contrast to it. In the case of the UK-based education-related organisation, some principles have been translated actively into practice through the implementation of specific Agile methods, such as Scrum and Kanban. This is not the case for the other participants.

Across all five external education or education-related organisations the most common principles to underpin practice were: Motivated teams, Collaboration, Face-to-face communication and Skill and design. Interview4 describes how motivation can play a role in the success of a learning product: ‘If everyone feels like they’re contributing to the final output then, I think, this helps motivate them and feel part of the success of the product and sort of proud of it’. Motivation was also highlighted in the account by Interview5 where she describes the optional nature of her Learning Design workshops.

However, there are instances where practice is also in contrast to these principles. For example, Interview2 explains that although there is a hub of specialists available to draw on, academic staff themselves are not trained in online pedagogy. This is both in alignment with, and in contrast to, the Skill and design principle. Face-to-face meetings and workshops were the most common practices to support Staff collaboration and Face-to-face communication. A lack of time to participate in production also had a negative consequence of disempowering staff.

Alignment with the principles of Continuous delivery, Iterative development, Self-organisation and Reflection and learning was difficult to evidence from the data; either because it does not occur, or the information was not provided by the participant.
Interestingly, given the nature of the organisations, only one example of practice that enables reflection and learning was presented. Iterative development is a cornerstone of Agile, and there was evidence of practice that either aligns or contrasts with it from each participant. **Interview**4 explains what this means in their context:

‘...you start something that perhaps doesn’t look really impressive or doesn’t have bells and whistles on it, but it is a test of your assumptions of what it is, what is the essence, of the service that your audience or your consumers value.’

However, both **Interview**1 and **Interview**2 describe a linear approach to development, with limited opportunity to test and refine what has gone before.

### 5.5 Developing the Agile toolkit

The data presented in *Chapter 4: Data analysis* has the greatest significance for the development of the Agile toolkit; that is, the study was designed to generate insight and feedback from practitioners to inform its creation and ongoing development. This section weaves together two threads: that of the researcher’s influence on the development and that of the practitioners. The role of the researcher has already been acknowledged within this thesis (Section 3.2.3). As a certified Agile Practitioner, the design and conduct of the research was influenced by the skill and knowledge of the researcher. This is evidenced in the Agile toolkit, which drew heavily on the concepts of iterative development, collaboration, enabling motivated people to participate, “customer” involvement, and reflection.

Development of the toolkit occurred across three cycles (Figure 26):

1. following the telephone interviews with external practitioners
2. following the face-to-face collaborative workshop
3. following the online focus group.
5.5.1 Version 1

The interview findings from the pilot study were used as the initial basis of the toolkit. Table 18 (see Section 4.2.4) maps the production practices of each organisation interviewed to the Agile principles, indicating whether they are in alignment or in contrast with them. These findings were used to translate principles into practices to support those organisations to realise the types of benefit that more mature Agile organisations have gained.

Table 33 presents the first attempt to design an Agile production process implementation framework. The intention was to provide alternative ways of working that could mitigate the issues faced with the current process, including reducing the time it takes to produce content through iterative development; self-organised and motivated teams to enable responsive resourcing and ensuring the right skills are available at the right time; and building in time to reflect and learn throughout the process, to continuously improve.
<table>
<thead>
<tr>
<th>Agile Principle(^{11})</th>
<th>Agile Practice</th>
<th>Intended benefit or outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuous delivery:</strong> Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.</td>
<td>Run production sprints</td>
<td>Course can be released at any time</td>
</tr>
<tr>
<td><strong>Embracing change:</strong> Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.</td>
<td>Create and follow a flexible plan</td>
<td>Ability to adapt to changing requirements; Agile mindset</td>
</tr>
<tr>
<td><strong>Iterative development:</strong> Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.</td>
<td>Break down production into deliverable chunks</td>
<td>Ability to generate results quickly</td>
</tr>
<tr>
<td><strong>Staff collaboration:</strong> Business people and developers must work together daily throughout the project.</td>
<td>Ensure cross-functional opportunities throughout</td>
<td>Increased collaboration and motivation</td>
</tr>
<tr>
<td><strong>Motivated teams:</strong> Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.</td>
<td>Enable staff to make decisions; provide support as and when required</td>
<td>Increased motivation; better management</td>
</tr>
<tr>
<td><strong>Face-to-face communication:</strong> The most efficient and effective method of conveying information to and within a</td>
<td>Create regular face-to-face opportunities; visualise the work pipeline</td>
<td>Increased focus and understanding</td>
</tr>
</tbody>
</table>

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\(^{11}\) Agilemanifesto.org, 2001b
<table>
<thead>
<tr>
<th><strong>Development team</strong> is face-to-face conversation.</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measuring progress:</strong> Working software is the primary measure of progress.</td>
<td>Create a prototype that can be tested with students</td>
<td>Better quality; Agile mindset</td>
</tr>
<tr>
<td><strong>Sustainable working practice:</strong> Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.</td>
<td>Ensure staff have the time available; promote shared ownership</td>
<td>Improved commitment; better management</td>
</tr>
<tr>
<td><strong>Skills and design:</strong> Continuous attention to technical excellence and good design enhances agility.</td>
<td>Ensure the right staff with the right skills are involved; build on the best pedagogic practice</td>
<td>Increased motivation; Better quality</td>
</tr>
<tr>
<td><strong>Simplicity:</strong> Simplicity - the art of maximizing the amount of work not done - is essential.</td>
<td>Consider whether all tasks are necessary; look for opportunities to maximise impact with minimal effort</td>
<td>Increased focus; Agile mindset; Better management</td>
</tr>
<tr>
<td><strong>Self-organisation:</strong> The best architectures, requirements, and designs emerge from self-organizing teams.</td>
<td>Take a holistic approach to production; promote shared accountability</td>
<td>Increased empowerment</td>
</tr>
<tr>
<td><strong>Reflection and learning:</strong> At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.</td>
<td>Hold “retrospectives” to reflect on and improve the process throughout, not at the end</td>
<td>Agile mindset; Better quality</td>
</tr>
</tbody>
</table>

### 5.5.2 Version 2

Analysis of the responses to the questions asked within the face-to-face collaborative workshop identified elements of current production at the OU that people value, as well as those they perceive would improve their future experience. In order to align the research with the needs of the Students First Transformation programme, this insight
was combined with the developing Agile production process implementation framework to illustrate how the Agile principles might be implemented to drive behaviours and actions that push the organisation towards a culture of agility, collaboration and responsiveness, and significantly improve production efficiency in line with a fundamental difference to how it operates currently. Version 2 of the Agile toolkit can be found in Appendix 10.

The framework formed the basis of the Reflection Aide to help determine the level of evidence of the Agile principles (high, medium or low) in current practice, as well as identify areas for action. The Agile toolkit is made up of three elements:

- Reflection Aide
- Dashboard Assessment Tool
- Illustrative scenarios featuring a worked example of the Dashboard Assessment Tool

The Dashboard Assessment Tool provides a means for practitioners to capture their assessment of practice against the criteria set out in the Reflection Aide. The illustrative scenarios not only feature a worked example of the Dashboard Assessment Tool, they also provide descriptions to help articulate what the production of online learning content could look and feel like if the Agile principles were adopted, rather than positioning Agile as an abstract, undefined concept. The descriptions are combined with a worked example of the Dashboard Assessment Tool, to illustrate those actions and behaviours that need to be emphasised and/or the priority areas where additional actions and support are required.

The elements of the toolkit are positioned along a time or “maturity” continuum, indicating that change in behaviour takes time and different teams will start at different points along the continuum. This timeframe is represented as three phases: alignment (present), adoption (short-term) and adaption (long-term). This is based on the hypothesis that practitioners begin with assessing their current practice against the Agile principles, to identify areas for change (alignment); they then adopt the Agile principles where there is limited evidence, using the actions prescribed in the Reflection Aide (adoption); before adapting their practice to suit their needs, drawing on Agile-based practices as appropriate (adaption).
5.5.3 Version 3

Version 2 of the Agile toolkit was shared with a group of practitioners at the OU for further evaluation. The evaluation took the form of an asynchronous online focus group, which posed a series of questions about the effectiveness of the toolkit for transforming practice through the implementation of the Agile principles. The focus group was designed to build a consensus view on the three elements of the toolkit. Following analysis of the results from the focus group, it was possible to distill a set of recommendations on which there was a consensus. These recommendations formed the basis of the next iteration of the toolkit (see Appendix 14).

Recommendations for the Reflection Aide

- **Recommendation 1:** Adapt some of the language of the Principles, to ensure applicability.

- **Recommendation 2:** Consider production team members who usually work in other teams, undertaking different roles.

The Agile principles used in this study are those incorporated within the Agile Manifesto; that is, they have been developed by software developers for software developers. It is unsurprising that there is a tension with their use in another context. Indeed, there is evidence of adaptation of the Agile principles for purposes other than software development (Kamat, 2012), and for the adaptation of principles more generally in teaching and learning (Elias, 2011; Kukulska-Hulme and Traxler, 2019).

The DSDM Agile Project Framework adopts the values of the Agile Manifesto, and while the DSDM Consortium informed the Agile principles of the Manifesto, the DSDM philosophy is guided by an alternative, but aligned, set to guide the delivery of projects. Table 34 shares an adaptation of the Agile principles for producing online learning content in HE, based on feedback from the online focus group (Recommendation 1). Adaptation is minimal to ensure integrity of the original principles. Changes to language are indicated by italics.
<table>
<thead>
<tr>
<th>Agile principle</th>
<th>Adapted Agile principle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Our highest priority is to satisfy the customer through early and continuous delivery of valuable software</td>
<td>1 Our highest priority is to satisfy the learner through early and continuous delivery of valuable online learning content</td>
</tr>
<tr>
<td>2 Welcome changing requirements, even late in development. Agile processes harness change for the customer’s competitive advantage</td>
<td>2 Welcome changing requirements, even late in development. Agile processes harness change for the institution’s competitive advantage</td>
</tr>
<tr>
<td>3 Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale</td>
<td>3 Deliver online learning content, from a couple of weeks to a couple of months, with a preference to the shorter timescale</td>
</tr>
<tr>
<td>4 Business people and developers must work together daily throughout the project</td>
<td>4 Academic and specialist staff must work together regularly and frequently throughout the production of online learning content</td>
</tr>
<tr>
<td>5 Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done</td>
<td>5 Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done</td>
</tr>
<tr>
<td>6 The most efficient and effective method of conveying information to and within a development team is face-to-face conversation</td>
<td>6 The most efficient and effective method of conveying information to and within a development team is face-to-face conversation</td>
</tr>
<tr>
<td>7 Working software is the primary measure of progress</td>
<td>7 Working online learning content is the primary measure of progress</td>
</tr>
<tr>
<td>8 Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely</td>
<td>8 Agile processes promote sustainable development. The production team should be able to maintain a constant pace indefinitely</td>
</tr>
<tr>
<td>9 Continuous attention to technical excellence and good design enhances agility</td>
<td>9 Continuous attention to technical excellence and good learning design enhances agility</td>
</tr>
<tr>
<td>10 Simplicity—the art of maximizing the amount of work not done—is essential</td>
<td>10 Simplicity—the art of maximizing the amount of work not done—is essential</td>
</tr>
<tr>
<td>11 The best architectures, requirements, and designs emerge from self-organizing</td>
<td>11 The best learning designs emerge from self-organizing teams in a flexible environment</td>
</tr>
</tbody>
</table>
Feedback also suggested that the concept of dedicated resource; that is, staff working on one project at a time, is unlikely to occur in practice. Unlike organisations, such as Google that are ‘very successful in maintaining its startup culture which is very open and engineering-centric. Project teams don’t have a project manager, but organize themselves…’ (Striebeck, 2006, p.1), universities are more likely to operate in way in which teams and work activities are orchestrated in a “top down” fashion. Speaking of his experience of joining Google, Striebeck (2006, p.2) offers a possible compromise that balances the need for management with that of growing the ability to self-organise:

‘I tried very hard not to implement anything top-down but to get buy-in from engineers and the product managers. The initial changes sounded reasonable to the engineers. Because I was managing several projects, I could not be too closely involved in the development activities itself. This probably worked to my advantage – the engineers realized quickly that I would not try to tell them how to do their job, but that I only structure the project in a certain way which was not too intrusive.’

Recommendation 2 is therefore incorporated into Principle 4, by suggesting colleagues work regularly and frequently rather than daily to accommodate availability, and Principle 11, by incorporating the idea of a flexible project management structure that can guide how teams come together and operate.

**Recommendations for the Dashboard Assessment Tool**

- **Recommendation 3**: Retain the use of phases (walking, running, sprinting).
- **Recommendation 4**: Include specific guidance to encourage buy-in and understanding from teams.
- **Recommendation 5**: Include examples of how things have been put into practice, as well as positive stories that show practical benefits.

Following feedback, Version 3 of the toolkit has retained the use of the phases (Recommendation 3) and guidance to support implementation has been included within the Tool (Recommendation 4). This should support a lack of understanding of Agile that has surfaced from the results. Recommendation 5 appears to support Emiliani’s
(2015) argument that staff will continue to exhibit resistance until the benefits of a change are proven; that is, the participants expect to see the benefits before engaging with the toolkit. Where possible, examples of Agile practice from the literature have been incorporated into the narrative descriptions rather than the Dashboard Assessment Tool. It is not possible to include all examples from the OU, as this is out of scope for the research; however, it is something that could be incorporated in any future redevelopment of the toolkit.

An additional recommendation was formed following the evaluation of the second version of the Agile toolkit – how to address the main barriers to implementation.

- **Recommendation 6:** Incorporate the main barriers to implementation.

The possible barriers to implementing Agile principles have been incorporated within the Tool, drawing on the findings as appropriate:

- A lack of shared understanding of what is required or expected in the development of the content (**Principle 1**).
- Incompatible software systems or tools that are not fit for purpose (**Principles 1, 3, 7**).
- The prevalence of silos (**Principle 4**).
- A lack of trust and the ability to guarantee enthusiasm or commitment (**Principle 5**).
- A lack of time for frequent, regular and/or face-to-face communication (**Principle 6**).
- Competing processes running to different timescales (**Principle 8**).
- Disparate, large teams (**Principle 11**).
- The ability to learn and implement new ways of working (**Principle 12**).
- The culture and history of an organisation and/or team (**All Principles**).
- The ability to apply Agile to all situations (**All principles**).

**Recommendations for the Narrative descriptions**

- **Recommendation 7:** Keep the imagery and layout simple.

Version 3 of the toolkit has retained the imagery and layout (Recommendation 7), and in the spirit of simplicity, the Dashboard Assessment Tool examples within each scenario have been simplified to enable practitioners to assess their practice against only
one driver for change: agility and responsiveness. The decision to remove the “collaboration” driver was informed by the hypothesis that the implementation of the Agile principles would lead to an increase in collaboration anyway; assessing practice against this driver was therefore superfluous.

**Recommendations for the Agile principles**

In their handbook, *The DSDM Agile Project Framework (2014 Onwards)* the Agile Business Consortium Ltd (2018b) advocates the importance of adhering to all principles in the practice of project management, stating that: ‘Compromising any of the … principles undermines the philosophy of DSDM and introduces risk to the successful outcome of the project’. In alignment with this view, it is apparent that some Agile principles are potentially more important for agility in the production of online learning content than others. Through the feedback on the second version of the toolkit, it was possible distill recommendations on which principles are a priority:

- **Recommendation 8:** Emphasise principles that are highly important for improving agility:
  - Reflection and learning
  - Embracing change
  - Staff collaboration
  - Motivated teams
  - Simplicity

- **Recommendation 9:** Emphasise Principles that are highly important for increasing collaboration:
  - Reflection and learning
  - Staff collaboration
  - Motivated teams
  - Self-organisation
  - Embracing change

- **Recommendation 10:** Emphasise Principles that are a high priority for driving change:
  - Reflection and learning
  - Continuous delivery
“Reflection and learning” are seen as most important for improving agility, increasing collaboration and driving change. The inclusion of the Reflection Aide within the toolkit is one means of implementing this in practice; that is, by explicitly promoting reflection. The use of Engeström’s (2000) expansive cycle of learning actions for individual-level implementation could be viewed as an additional means for this task (see Section 5.6.2).

Where possible, aspects of the other Principles listed above (for example, “trust”) have been emphasised within the toolkit, either within the Dashboard Assessment Tool or the narrative descriptions.

5.6 Implementing Agile principles in practice

Striebeck (2006) prescribes implementing ‘one agile practice at a time’ to improve agility, rather than to bombard teams with new ways of working in which the value is not immediately clear. In contrast to Striebeck’s (2006) recommendation, this researcher posits that it is not necessary to implement Agile in this way to be effective. The Agile toolkit produced from this research leaves the decision to adapt practice to the team.

The Reflection Aide is designed to uncover existing aspects of practice that already align with Agile; the further implementation of Agile is dependent on the context and maturity of the team. The inclusion of narrative descriptions within the toolkit is designed to help build a shared understanding of Agile and what Agile-aligned practice could “look and feel like”. It is hoped that this would provide a solid basis for decision making on which Agile practices to adopt and when.

5.6.1 Production as an activity system

Chapter 3: Theory, methodology and methods introduced a model that can be used to illustrate a system view of production: Engeström’s (1990) activity system (see Figure 7, Section 3.2.4). A finding from the analysis of the workshop data is that participants did not view themselves as one production team, instead they saw themselves working in two silos: faculty and LTI (in Professional Services). Illustrating the current practice of production as one activity system would not be a true representation of the experience of participants.

Instead, it is more relevant to draw on the third generation of Activity Theory and another model: Engeström’s (2001, p.136) model of two interacting activity systems
(Figure 27). Along with sharing a common object (producing online learning content), the two activity systems also share other characteristics, such as tools and rules. This suggests a degree of common ground on which to further build an Agile-aligned way of working.

Figure 27: Two interacting activity systems of current production practice at the OU (adapted from Engeström, 2001)

Illustrating practice as an activity system could be viewed as support for Wenger-Trayner et al.’s (2014, p.13) social perspective on professional learning across a ‘landscape of practice’, which is made up of ‘a complex system of communities of practice and the boundaries between them’. To extend this argument, Figure 27 can be viewed as the current ‘landscape of practice’ as two university areas come together to produce online learning content.

Over time, an Agile-aligned approach to producing online learning content could support an integration of these two interacting systems into one. Agile is underpinned by the concept of “one team”, however, the findings from the face-to-face collaborative workshop and the online focus group signify a conflict with the current way of working at the OU. The use of clear roles and responsibilities could be one way to improve collaboration, reducing duplication of time and effort. Figure 28 can be viewed as the future integrated ‘landscape of practice’.

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However, in order to bridge the gap between current and future practice, the boundaries between the two interacting systems need to be surfaced and explored, as they can be ‘places of potential misunderstanding and confusion’ and ‘common words are not guaranteed to have continuity of meaning’ (p.17).

Support for this view manifested in the evaluation of the Agile toolkit conducted by the online focus group; that is, there was a repeated call for the language of the Agile principles to be translated into something meaningful across the spectrum of roles and perspectives. The tension between boundaries also played out in the workshop with an “us and them” belief that materialises in silo working. By ‘bringing together multiple voices that reflect the structure of the landscape’ as Wenger-Trayner et al. (2014, p.18) suggest, this research is a starting point for exploring the tensions and misunderstandings at the boundaries between faculties and practitioners within Professional Services.

5.6.2 Supporting learning in practice

Chapter 3: Theory, methodology and methods introduced another model that can be used to structure the implementation of the Agile principles in practice: Engeström’s (2000) expansive cycle of learning actions for individual-level implementation (see Figure 8, Section 3.2.5). This section discusses how the results presented in Chapter 4:
**Data analysis** have been applied to the model, to indicate how the Agile toolkit can be used by practitioners to implement the Agile principles (Figure 29).

![Diagram of Agile model implementation cycle](image)

**Figure 29: A cycle of expansive learning actions for implementing Agile principles (adapted from Engeström, 2000)**

The cycle begins with questioning the current practice of producing online content; that is, the scope of this research. The study was designed to build on the past by analysing the current and future practices of production. This was achieved by engaging a broad range of practitioners, either by interview or in the workshop. The outputs of the methods were used to create the first version of the toolkit, which modelled how Agile-aligned practice could look and feel. However, for this model to apply to this study, an adaptation is required in the form of two additional iterative loops: modelling and examination, and implementation and reflection.

The first iterative loop refers to the creation of the toolkit (modelling) and the evaluation of the toolkit by practitioners in the online focus group (examination). Feedback from the group, in the form of a set of recommendations, was then incorporated into the next iteration of the toolkit. It is at this point in the implementation cycle that this research
finds its limits, but it also opens up opportunities for further testing (see Chapter 6: Conclusions and recommendations).

The use of the toolkit to guide the implementation of the Agile principles in practice is an activity that occurs post-thesis, and it is also the point in which the second iterative loop occurs. The model’s emphasis on reflection is suitably mirrored in the use of the Reflection Aide to support a critical reflection on current practice; however, a reflection is also needed on the process of implementation, to ensure its applicability to the context. Lack of reflection and ‘time to think’ have been shown to be negative side effects of the current experience of production, as evidenced by the “black hat” exercise during the workshop, and this is supported by the literature where ‘finding time for teams to ‘reconnect’, share experiences and learn from others is important’ (Waldron, 2017, p.18). This model could help to reinforce the need to reflect and learn (Agile principle 12) as a usual part of practice.

The inclusion of the second loop signals that further adaptation may be required, to increase the success of implementation and changed practice. This can be likened to Durdu et al.’s (2009, p.244) ‘flexible model that does not attempt to impose rigid prescriptions to’ practitioners. It is at this point that the learning through this iterative and reflective process can be consolidated with practice.

5.6.3 Top-down versus bottom-up implementation

The research has surfaced several perceived barriers to the implementation of Agile principles, some of which have been incorporated into the redevelopment of the toolkit (see Section 5.5.3; Appendix 14). The literature review offers two differing views on the adoption of Agile: “top-down” and organisation-driven (Plonka et al., 2014) and gradual “bottom-up”, ‘one Agile practice at a time’ (Striebeck, 2006). Plonka et al. (2014) argue that a gradual implementation invites challenges as the Agile “team” must work within a non-Agile environment for the time it takes to transition to a new way of working. Following a case study, they share the challenges experienced when adopting Agile:

- ‘Differences in organisational cultures including communication, staffing approaches, values and language barriers
- Managing the transition to agile and learning how to co-exist with the non-agile part of the organisation
• How to report agile progress to demonstrate control over projects and negotiate what information should be provided and at which level of detail’.

(p.11)

The Agile toolkit has been designed to work in two ways. The use of illustrative scenarios can be used to drive discussion and decision making at an organisational, strategic level (top-down change) and the Reflection Aide can support changes in practice at an individual level (bottom-up change). Similarly, the use of the two theoretical models was also influenced by the need to create a flexible, multi-dimensional “framework”; Engeström’s (1990, 2001) activity systems contribute to the “system” view of implementation, and Engeström’s (2000) model of the expansive cycle of learning actions supports the individual-level view of implementation. If used together, the hope is that practitioners and the organisation as a whole would, over time, “meet in the middle”.

5.6.4 Possible bias in Agile

The group discussion conducted as part of the workshop revealed an unexpected finding when one of the participants spoke about ‘discriminative practices’. In particular, he referenced potential inherent bias in Agile. Tied into the patriarchal origins and evolution of the software development industry, there is a question of the extent to which the Agile Manifesto discriminates against women and/or carers. One example could be the daily stand-up ritual and how it may conflict with emerging organisational working practices, such as flexible or home working. Reflecting on the feelings of exclusion from ‘knowledge building’ expressed by notable women such as Simone de Beauvoir and Virginia Woolf, Dorothy Smith (1978) argues:

‘Women [were] largely excluded from the work of producing the forms of thought and the images and symbols in which thought is expressed and ordered. … The circle of men whose writing and talk was significant to each other extends backwards in time as far as our records reach. What men were doing was relevant to men, was written by men about men for men. Men listened … to what one another said.’

(Dorothy Smith, 1978, p. 281; cited in Hesse-Biber, S., 2012)

Although written in the 1970s to capture the exclusion of women decades before, this description could be attributed to how the Agile Manifesto was created in 2001: a group of predominantly white men listening to each other, writing a Manifesto about men’s experiences of software development for men working in software development. This
could also suggest a possible multi-cultural bias or barrier inherent within Agile that would need to be addressed (Sutharshan and Maj, 2011), particularly when engaging with remote or overseas teams.

5.7 Conclusion

The purpose of this chapter was to explore the meaning, significance and relevance of the findings from the results presented in the previous chapter in relation to the research and the current body of knowledge. It did this by discussing the extent to which the findings supported, extended or diverged from the current understanding of Agile in HE and the argument for alternative models of designing and developing content explored in Chapter 2: Literature review. This chapter has also provided a reflection on how the findings at the various stages of the research process have informed the development and intended use of the Agile toolkit, including how the learning theory that underpins the study has been applied to the research findings to guide the implementation of the Agile principles at a system and individual level.

The next chapter will consider how far the research objectives were addressed in relation to the real-world problem the study was designed to address and offer recommendations for taking forward the outputs of this study, including any implications for professional practice, theory and future research.
Chapter 6. Conclusions and recommendations

6.1 About this chapter

In the previous chapter, the findings from the data were discussed in relation to their meaning, significance and relevance for the research and the existing body of knowledge. The purpose of this chapter is to consider the extent to which the research objectives were fulfilled in relation to the real-world problem the study was designed to address. It then offers recommendations for taking forward the outputs of this study, in the form of an Agile toolkit. It achieves this by discussing any implications the research outputs and outcomes have for professional practice, theory and future research. Lastly, there is a note on the plans for disseminating this research and a brief reflection on becoming a researching professional over the course of the doctoral study programme.

6.2 Thesis summary

The original aim of the research was to help HEIs to explore an alternative, timely way to produce courses, to better meet the needs of students in an uncertain and changing context. It set out to consider the extent to which Agile can be adopted within a university production environment. This thesis presents the first step to addressing the complex problem of universities being designed and structured in a way that makes it difficult for them to respond quickly, to meet the challenges and opportunities afforded by a changing environment. It examined this problem through the lens of the external, political context in the UK and its influence on the internal, strategic context of the OU. One possible solution, in the form of an Agile toolkit, has been developed to help promote agility in the production of online learning content. How this toolkit fares in practice is to be tested and understood, and Section 6.6 offers recommendations for taking this forward.

The objectives of the research, informed by a review of the literature, were:

1. To focus primarily on the Agile philosophy (in the form of its underpinning principles), bringing in examples of Agile practices only where they add value.
2. To produce output(s) that would enable a transformation of professional practice, and lead to future benefits.
3. To bring in a multi-dimensional view of production in terms of who produces online learning content and how.
4. To provide a UK-based Higher Education perspective on the adoption of the Agile philosophy.

These objectives contributed to the formation of two research questions: Which current online production practices align with the Agile principles? (RQ1) and How can learning organisations implement Agile principles and practices within the production of online learning context? (RQ2). The study was conducted in two phases - a pilot and a main study - and used multiple methods to generate meaningful, significant and relevant insight. The data generated made it possible to map multiple forms of practice across to the Agile principles, which guide the translation of the Agile philosophy into practice (Objective 1). In total, 30 practitioners lent their perspectives to the development and redevelopment of the Agile toolkit, which can be used to identify the extent to which the Agile principles are already present in practice, and to surface areas that require further intervention (Objective 2).

Using Activity Theory it was possible to build a multi-dimensional view of practice, from the individual interpretation of practice to that of an activity system (Objective 3); that is, production was examined through the lenses of how it occurs (“tools” and “rules”) and who does what (“division of labour”). Five participants were from external education and education-related organisations in the UK and beyond, and the remaining participants were from the OU in the UK (Objective 4). Taking this approach resulted in the finding that there is a diversity of practice both outside and inside the University. This finding has been incorporated within the toolkit to ensure it is both flexible and applicable to a range of educational settings.

The research has identified those Agile principles to which practices are most aligned: Motivated teams; Staff collaboration; Face-to-face communication; and Skills and design. Principles that require more support to implement are: Continuous delivery; Iterative development; Self-organisation; and Reflection and learning. It was also possible to determine the issues faced with current production processes and any potential barriers to the implementation of all the Agile principles. Where possible this insight was used to inform the toolkit guidance, but it also serves to support the future use and testing of the toolkit in practice.

In relation to the existing body of knowledge on Agile in HE, the findings support some of the arguments for a reimagining of production; for example, a print-based model
does not allow for collaboration which results in an inflexible and disempowered team who are unable to adapt designs; specialists find themselves acting in a project management role instead of developing content; and production practice has not evolved with online pedagogy. The findings also surface tensions between roles and responsibilities, the level of maturity in process and project management, and culture and behaviours that are not conducive to an Agile-aligned way of working.

Lastly, the thesis contributes a view of conducting workplace research in an uncertain and changing environment – from the perspective of the research and the researcher, as a researching professional. At times, this experience has influenced the direction and conduct of the research, reinforcing the need to use a pragmatic and flexible framework to guide the theoretical, methodological and analytical approaches applied to the study. The flexibility afforded by the framework enabled the researcher to accommodate expected and (more often) unexpected change in their operational context, to ensure the research kept some alignment with the strategic intentions of the University (see Section 6.8 for a reflection on becoming a researching practitioner).

6.3 The Agile toolkit

The concept of “Agile” has evolved over decades from its roots in manufacturing and production, and its subsequent prevalence in software development. Previous research has shown that the application of Agile is not just about following a manual; it requires a deep understanding of the context in which it is being applied so that it can be tailored accordingly. This research set out to understand the practice of producing learning content across multiple education and education-related organisations, including the OU, to develop a tool that would support the application of the Agile philosophy in an academic environment. The Agile toolkit developed as an output from this research (see Appendix 14) embraces this need for “tailoring” in that it has been developed by practitioners, for practitioners using insight from a broad spectrum of practice.

Findings from the research indicate a balance is needed in how the Agile toolkit is positioned with practitioners; that is, not to suggest that all current practice is “bad”. At an individual level, drawing on an Appreciative Inquiry-based approach, the toolkit enables practitioners to reflect on their practice, to appraise what works well and to equip them with the means necessary to change and adapt where required. The Reflection Aide supports identification of aspects of practice that already align with
Agile, and the Dashboard Assessment Tool offers guidance to accentuate the aspects that are lacking. At an organisational level, coupled with the learning around current and future activity systems, the toolkit can be used to drive strategic discussion and decision making that can lead to a shift in organisational culture, processes and behaviour, by illustrating how the adoption of Agile looks and feels. At the OU, the toolkit can be a means by which staff ‘proactively seek to develop themselves, including […] change capability’ (OU, 2016, p.7).

6.4 Recommendations for professional practice

This thesis has presented a toolkit, developed with practitioners for practitioners, to support professional practice in technology-enhanced learning. The Agile toolkit offers one way for practitioners within an online content production environment to reflect on and improve their practice, to be able to respond to opportunities and innovation and to more effectively accommodate unexpected changes as a result of uncertain and complex times. The use of the Agile toolkit has the potential to support strategic conversations and decision making around agility and change in how teams collaborate to produce online learning. It also offers a user-friendly model of adopting Agile principles and practices in a non-software development context, drawing on the knowledge and understanding of the efforts required to do so. The toolkit presented here is by no means a proverbial ‘silver bullet’ for all problems (Hohl et al., 2018, p.3). The research has surfaced tensions within current and future views of practice that need to be addressed to fully exploit the potential of organisational agility.

The depiction of current practice at the OU as two interacting activity systems, and future practice as a single activity system, illustrates the desire of practitioners to break down silos and increase opportunities for collaboration with other areas of the University, but the culture and practices often present barriers to this happening. With increasing competition, decreasing funding and relentless uncertainty, HEIs need to reflect on their operating practices to identify where efficiencies can be made. However, this research has surfaced another tension between reflection and change: practitioners recognise the importance of reflection for increasing agility and driving change, but there is little evidence that it happens in practice. While this thesis provides an Agile toolkit to guide and implement a change in the individual and/or team practice of producing online learning content, a wider cultural shift is required for it to be
successful; that is, organisations must understand the value of reflection in change and continuous improvement, so that it may be viewed as a critical part of a practitioner’s practice. From this perspective, the research outputs can help to ignite a shift in culture towards one that places the ability to reflect at its heart.

6.5 Recommendations for theory

The study was underpinned by a theoretical framework that comprises Activity Theory and Engeström’s (2000) expansive cycle of learning actions. This framework contributed to a flexible and pragmatic methodological approach that enabled not only a multi-dimensional view of practice to emerge, but also offered a way for practitioners to adapt their practice through learning. Both Willeke (2011) and Yocum (2015) focus on the lived experiences of people; this suggested a viable theoretical and methodological approach with which to research production practice. However, unlike Yocum (2015) this study has shown that production is a multi-dimensional process with multiple roles, rules, tools and practices – and within multiple realities.

To understand how production really occurs within an organisation, a holistic understanding is needed. The use of an activity-theoretical approach was able to surface this holistic system view, which drew from the rich insight into what it was like to be active participant within that system. As raised in Section 3.4, the limitations in the use of Activity Theory led to the need to include a supplementary methodological perspective, to address the experiences of different individuals participating in the same activity (Shanahan; cited in Mills et al., 2010). Adopting Phenomenology as a theoretical perspective in future research could help to drill down into multiple perspectives and explore the prevailing cultural understandings of the production of online learning content through the personal experiences of those involved (Gray, 2013, p.24; Tsoukas, 2015, p.58).

To apply Engeström’s (2000) model of expansive cycle of learning actions, the researcher found that two small adaptations were required in the form of the inclusion of two iterative loops. The first loop mirrored the iterative development of the Agile toolkit; that is, it was examined and then redeveloped. The second loop mirrored the anticipated cycle of reflection and adaptation that would be required to successfully implement the Agile principles in practice. This addition contributes an alternative view on the theory on expansive learning and is open to further testing and research.
The researcher acknowledges that alternative theories could have been used, such as Lave and Wenger’s (1991; cited in Wenger, 2010) concept of Communities of Practice, as demonstrated by Smite et al. (2019). To build a community around the implementation of the Agile toolkit could help to identify social learning as it emerges through its use (Wenger, 2010, p.179). This could be viewed as a natural next step following this research, to support ongoing reflection and improvement in practice.

6.6 Recommendations for future research

6.6.1 Testing the Agile toolkit

The research presented here is only the beginning of the journey into establishing whether the Agile philosophy can be used to improve agility within the production of online learning content, and, as such, should be viewed as a springboard on which to further explore the findings or begin new lines of inquiry. Drawing on Engeström’s (2000) model of expansive cycle of learning actions, the research “ends” at the first iterative loop following the redevelopment of the Agile toolkit based on the recommendations from the online focus group. There is an opportunity here for further testing and development of the toolkit, within the OU and/or elsewhere; for example, including examples of good practice. There is also opportunity for future research to extend the application of the adapted Engeström (2000) model, to illustrate the entire cycle in practice including the second iterative loop.

6.6.2 Applying Agile concepts in education

This research contributes to the growing body of literature around the use of Agile outside of the software development context, and specifically the implementation of the Agile philosophy within HE. The literature review has shown that “Agile” is an established area of research in the US, but less so in the UK. This is not surprising given that the Agile Manifesto is largely a US-grown concept. It has also highlighted that existing research on the implementation of Agile within HE and the production of online learning content is sparse. Indeed, Yocum (2015) positioned her work as a starting point and recommended more research in this area.

Given the rising pressure for HEIs to adapt to a changing environment, this exposes a gap for more UK-based evidence on the implementation of Agile principles in education, and for guidance on how to do so. This research is one effort to help fill that
gap, but more research is needed. For example, a gap remains on the impact and benefits of Agile on professional practice within HE. Balzer et al. (2016) identified few studies that directly examined the impact of the improved processes on the individuals who were supposed to benefit. Future research could determine the impact the Agile toolkit has had on practitioners within production, and the wider organisation.

Overall, the literature reviewed does not cover all practices defined under the Agile umbrella, such as user involvement throughout the development process. The concept of user involvement aligns with the trend for student involvement in the design of curriculum (Healey et al., 2014), and so this is another area to be explored. This thesis has not been able to cover every aspect of the Agile philosophy, more research could help to expand knowledge of each of the 12 Agile principles and how they can be manifested in professional practice.

6.6.3 Determining bias in Agile

This research has revealed the potential for gender bias in Agile, given that it was largely developed by (predominantly white) men for men. A feminist theoretical view of Agile could help to determine the extent to which a gender bias is present in the Agile philosophy and its resulting practices and methods. From this perspective, it may be possible to determine whether certain Agile practices adversely affect women (or any other people with a protected characteristic) working in the area of production – or indeed in any other context in which Agile has been adopted.

6.7 Dissemination

The topics covered within this thesis open the research up to multiple channels of dissemination. First, there is a growing body of grey literature, fueled by Agile practitioners and enthusiasts from various fields; and there are also many “specialist” networks that would welcome research of this nature; for example, the Women in Agile network (https://womeninagile.org) is a space primed for studies conducted by women researching practitioners. There may also be offshoots of this work that would complement their agenda, such as feminist views on the application of Agile.

In academia, Agile-related research appears most often in software- and systems-related publications, however with the rise in Agile in non-software development contexts, there is opportunity to make connections with, and disseminate findings within, the
many educational technology and educational practice journals available. This is particularly pertinent given the ongoing changes affecting HE and the need to adapt to remain relevant and sustainable. The sharing of the Agile toolkit, beyond the organisation in which it was developed, would help to further develop it, to ensure its success in supporting either discussion or transformation within professional practice.

Unpacking the broader themes touched on throughout this thesis, the research could also be shared in publications on change and transformation in education as well as implementing strategy. As this represents an EdD study, there is also a value in disseminating findings on conducting insider research – particularly during times of uncertainty and change. Publications concerning autoethnography may welcome this insight, as well as those that invite the use of practical and responsive frameworks.

6.8 Reflection on becoming a researching professional

Section 3.2.3 discussed the importance of reflexivity and reflection for education and learning (Burnard et al., 2018, p.50), and this not only applied to the research, but also the researcher. To borrow a well-used saying, the EdD journey has been a marathon and not a sprint, with frequent hurdles and obstacles to overcome and navigate. Where the researcher started in 2016 is not where they have ended in 2019. Looking back at the reflective progress statements over the course of three years, it is heartening to see how an employee working in the same research environment has evolved to become a researching professional. The skills and experience gained are already being put into good use beyond the EdD, illustrating a direct impact of learning on practice.

As indicated in Chapter 1: Context and rationale, the research was instigated at a time of significant change in the University and the wider sector. This change would eventually ripple down to impact the research and the researcher; for example, prompting five role changes over the course of the programme. Given the topic was on Agile as a means of improving agility to respond to change, it is unsurprising that some lessons were learned in becoming an “agile researcher” as well as a researching professional. The decision to use a flexible framework to guide the study enabled the researcher to navigate significant events in the institution, events that have caused the researcher to pause, reflect and adapt, to ensure the connection with practice and the strategic intention of the University was maintained.
References


Appendices

Appendix 1: The Agile Manifesto

Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

While there is value in the items on the right, we value the items on the left more.

12 Principles

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
4. Business people and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity—the art of maximizing the amount of work not done—is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

AgileAlliance.org

Manifesto Authors

Kent Beck  Mike Beedle  Arie van Bennekom
Alfie Codouns  Ward Cunningham  Martin Fowler  Steve Mcg  Gene Thomas  James Grenning  Andrew Hunt  Ken Kern  Ken Schwaber

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Appendix 2: Literature searching model from The Open University Library Services
### Appendix 3: Extract of the literature search record

<table>
<thead>
<tr>
<th>Database/source</th>
<th>Theme</th>
<th>Keywords</th>
<th>Limiters</th>
<th>Results</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Library search (multiple databases)</td>
<td>Context setting</td>
<td>“Funding” of “UK” “Higher Education”</td>
<td>Peer-reviewed research publications; Full-text resources available online; Higher Education-related context; Literature published in English; Literature from 2006 onwards; Articles only</td>
<td>72 results</td>
<td>Too broad; added “Articles only” to limiters; narrowed down publications to avoid specialist subjects (i.e. Nursing); added “United Kingdom” and “Universities” filters</td>
</tr>
<tr>
<td>Open Library search (multiple databases)</td>
<td>Application of Agile in Higher Education</td>
<td>“Agile” in “Higher Education”</td>
<td>Peer-reviewed research publications; Full-text resources available online; Higher Education-related context; Literature published in English; Literature from 2006 onwards; Articles only</td>
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<td>Search yielded some irrelevant results</td>
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<td>Peer-reviewed research publications; Full-text resources available online; Literature published in English; Literature from 2006 onwards; Articles only</td>
<td>24 results</td>
<td>Selected for review: (Sutharshan et al., 2011)</td>
<td>Search yielded some irrelevant results; identified an article that refers to Agile and multicultural teams (Sutharshan et al., 2011)</td>
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</tr>
<tr>
<td>Open Library search (multiple databases)</td>
<td>Agile AND online learning</td>
<td>Peer-reviewed research publications; Full-text resources available online; Higher Education-related context; Literature published in English; Literature from 2006 onwards; Articles only</td>
<td>1 result</td>
<td>Selected for review: None</td>
<td>Too narrow; result focused on students learning from Agile strategies</td>
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<td>---</td>
<td>---</td>
<td>---</td>
</tr>
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<td>Agile AND learning content</td>
<td>Agile AND learning content</td>
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<tr>
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<td>Selected for review: Durdu et al., (2009); Brown (2014)</td>
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<td></td>
</tr>
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<td>Keywords Used</td>
<td>Number of Results</td>
<td>Selected Results</td>
<td>Description</td>
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<td>Agile methods OR Agile practices AND Higher Education</td>
<td>42 results</td>
<td>Selected for review: UIkey et al., 2016; Waldron, 2017; Hohl et al., 2018</td>
<td>Too broad; added “Agile”, “Agile development” and “Agile methods” filters; added “product development” filters; identified article that refers to applications of Agile since inception</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Library search (multiple databases)</td>
<td>Agile adoption (challenges and opportunities)</td>
<td>87 results</td>
<td>Selected for review: None</td>
<td>Too broad; added “business”, “project management”, “agile” and “agile software development” filters; added “management” filter; added “methodology” and “strategy” filters</td>
<td></td>
</tr>
</tbody>
</table>

“Agile adoption” Peer-reviewed research publications; Full-text resources available online; Higher Education-related context; Literature published in English; Literature from 2006 onwards; Articles only
Appendix 4: Structured interview questions

1. Please describe the context of your practice

2. How do you define “online learning” at your institution/organisation? Which forms does online learning take (e.g. MOOC, OER, blended)?

It may be helpful to think of a specific example of producing online learning when answering the following questions:

3. Outline briefly the process for designing online learning
   a. Who is involved in the process?
   b. How are teams organised and managed?
   c. Which methods, practices and tools do you use?

4. Outline briefly the process for developing online learning
   a. Who is involved in the process?
   b. How are teams organised and managed?
   c. Which methods, practices and tools do you use?

5. What are the issues you face with the design and development of online learning using your current processes?

6. How did you implement the use of your methods/practices/tools?
   a. What were the challenges of implementation?
   b. What were the benefits from implementation?

7. Some production methodologies emphasise the “value” certain practices will add for the end product and its users. How would you interpret “value” in your context? E.g. In Lean software development, “value is defined as any function or process that a customer would be willing to pay for”.

8. Using your interpretation, which methods/practices/tools add value to the production of online learning in your context?

9. Using your interpretation which methods/practices/tools detract value from the production of online learning in your context?

10. How familiar are you/your institution/organisation with the Agile movement; its principles, values and methods? IF AGILE HAS BEEN ADOPTED:
    a. What has been the impact of agile methods on the principles and values of your organisation?
    b. Which principles and values of Agile align with those of your organisation? Which do not?
Appendix 5: Information leaflet for the pilot study

Investigating agile production methods (A pilot study)

About the study

I am carrying out a pilot study into the design and development of online educational content within a range of education-related organisations. The aim of the study is to map different practices to the key values and principles of the Agile philosophy. Some organisations have adopted specific Agile methods for production, while others have not. For those organisations that have, understanding how they have implemented them will help to build a picture of how Agile could be used effectively within Higher Education.

As part of the research, I am interviewing people about their views and experiences of designing and developing online content within their context. The Institute of Educational Technology (IET) is conducting the research on behalf of The Open University.

Why do you want to interview me?

Your organisation has been selected based on a set of specific criteria:

- You operate within the context of Higher Education OR
- You operate within an education-related field
- You use content or learning activity production methods
- You operate nationally, internationally or both
- You are based in the United Kingdom OR
- You are an open university

I am contacting a small number of people to ask if they would like to take part in this study.

What will the interview be like?

The interview is based on 10 questions. It will take approximately 30-45 minutes. The interview will be conducted via telephone or Skype and will be recorded so that I can be sure that I correctly remember everything that you tell me.

What will the interview be about?

I will ask you about:

- The use of production methods within your organisation
- Your familiarity with the Agile philosophy and associated methods
- The impact of using agile methods on your core business (if using Agile)
- The adoption and implementation of agile methods (if using Agile)
- Any lessons learned

What will happen to the information I provide?

The information that you and other participants provide will be drawn together in a report. Any personal information given will be confidential to the research team. Anonymity will be maintained within the report, and any subsequent published papers, so individuals and their organisations are not identifiable.
My responsibilities to you

- I guard your privacy: your participation will be treated in strict confidence in accordance with the Data Protection Act. Your contribution will be used for research purposes only. Individuals will not be identified in the final report or any subsequent published papers.
- I respect your wishes: participation in the study is voluntary. If you do not want to take part, just let the research team know when they contact you. You are free to withdraw from this study without explanation or prejudice and to request destruction of any data that been gathered from you until it is anonymised at the point of transcription on 30th September 2016.
- I answer your questions: I will be happy to answer any questions you may have about the research.

Our contact information

[Removed]
Appendix 6: AppreCHATive Inquiry toolkit (Elgvad et al., 2013)

Workshop Guide - Structure

Introduction
Discuss the aim of the workshop - what process or documentation is under scrutiny and introduce the AppreCHATive Inquiry technique.

Interview feedback
If you have hosted any 1:1 interviews as part of the work, then disseminate any reflections and themes identified. Were there any quotable quotes?

De Bono's black hat
Ask participants to write all negative judgements and opinions of the process or documentation under scrutiny onto Post-it notes and pin to the black hat on the wall.

Positive Posters x 3
Split the process or documentation into 3 sections and split the group into 3 sub-groups. Ask each group to stand by each wall and speed think. After 10 mins, move to the next wall and then the final wall 10 mins later.

Prospective posters
Ask participants to sit down at the tables and get into their groups again. Ask them to think about their ideal process or documentation for the future - draw it! If they could wave a magic wand, what would it look like?

Appreciative Inquiry

+ Negative Black Hat

= AppreCHATive Inquiry

Possibility statements
Based on all participant feedback, collectively write ideal possibilities for the future.

Best practice examples
Discuss any examples from other institutions that might be useful to know about.
Appendix 7: Summary of workshop outputs

Visioning the future of curriculum design and development
Summary of workshop outputs

Recap

Purpose of the workshop

In March 2018, a workshop was held for the purpose of creating a series of illustrative examples of how the philosophy underpinning Agile Software Development might be implemented within the University to drive behaviours and actions that push us towards a culture of agility, collaboration and responsiveness, and significantly improve production efficiency in line with the fundamental differences to how we operate currently. In particular, the workshop helped to identify and promote examples of existing great ways of working that align with this philosophy.

A number of colleagues took part, with roles spanning the spectrum of production. This document provides a summary of the insights you shared about what works well now, and how it can work better in the future. As a reminder, the poster sessions covered four aspects of production:

- **People**: The roles and responsibilities across production
- **Process**: The overall production process, and any sub-processes that feed into it.
- **Products**: The documentation we use
- **Practices**: How we manage and facilitate production

The outputs of the session, combined with additional existing insight, have informed the first iteration of a set of illustrative scenarios. These will be developed further following feedback from colleagues embedded within production.

Once again, thank you for your time.
### What’s working well now?

**A summary of the poster exercise**

<table>
<thead>
<tr>
<th>Poster</th>
<th>You said you value...</th>
</tr>
</thead>
</table>
| People: The roles and responsibilities across production |  - Strong leadership  
- Clear roles and responsibilities  
- Skilled colleagues  
- Continuity and structure  
- Communicating with each other face-to-face  
- Bringing in other perspectives (students, ALs) |
| Process: The overall production process, and any sub-processes that feed into it |  - Understanding each others' roles and expertise  
- Sharing an understanding of the process  
- Having time to plan, review and revise  
- Learning Design to shape an understanding of the why, who, what and how  
- Leadership and having a vision  
- Developmental testing |
| Products: The documentation we use |  - Having a “one stop shop” of information  
- The LTI Production Specification to help plan resources, and Production Schedule to help monitor slippage  
- The LTI Editorial Draft Cover Sheet for sharing feedback with authors  
- Capturing design risks in the TEL Design Plan  
- Having a shared online workspace |
| Productive How we manage and facilitate production |  - Learning Design  
- Building good relationships  
- Tying something new  
- Collaborating with others  
- Using data analytics  
- Good project management  
- A culture where people care |

### What does the future look like?

**A summary of the poster exercise**

<table>
<thead>
<tr>
<th>Poster</th>
<th>You said your ideal experience of production would include...</th>
</tr>
</thead>
</table>
| People: The roles and responsibilities across production |  - Transparency of workspaces  
- Flexibility in roles and responsive staffing  
- Increased contact and availability of key team members  
- Wholesale buy-in to a collaborative culture  
- Respect for each others contributions  
- A wider production team (including ALs and students)  
- A physical and dedicated space to share information  
- A commitment by all to teaching, learning and understanding students  
- A one-team mentality, not faculty plus LTI |
| Process: The overall production process, and any sub-processes that feed into it |  - An overall streamlined and transparent process  
- A quicker and simplified approval process  
- Being empowered to make decisions  
- Clear accountability and trust  
- Working in close proximity of key people involved (i.e. co-location)  
- More (cross-functional) collaboration  
- A team that is involved from start to finish  
- Curriculum that is designed to be responsive/adaptive |
| Products: The documentation we use |  - Improved problem reporting and the use of smart analytics  
- Live, responsive and up-to-date documentation  
- Less, but enough documentation – no duplication  
- Integrated systems and data  
- A searchable archive of reusable or modifiable assets  
- Responsive Learning Design  
- A strong community |
| Practices: How we manage and facilitate production |  - A good mix of specialists, with clear roles and responsibilities  
- Wholesale understanding of the process, and how students want to study  
- Removal of barriers  
- Fewer, but better, systems and responsive VLE developments  
- Space for creativity, experimentation and discussion  
- A ‘fellow learners’ process to challenge continually the team  
- Evidence-based practice, building on lessons learned  
- A way of being action-focused |
Appendix 8: Information leaflet for the main study
(workshop)

VISIONING THE FUTURE OF CURRICULUM DESIGN AND DEVELOPMENT

About the study

On behalf of the Systems and Tools strand of the Teaching Excellence & Innovation workstream, which is part of the Students First Transformation, I will conduct a small-scale study to explore how the future of curriculum design and development could look and feel at The Open University. This work builds on a pilot study, conducted as part of my Doctorate in Education (EdD) research, which investigated production practices across different education-related organisations.

As part of this study, I will facilitate a workshop for the purpose of creating a series of illustrative examples of how the philosophy underpinning Agile Software Development might be implemented within the University to drive behaviours and actions that push us towards a culture of agility, collaboration and responsiveness, and significantly improve production efficiency in line with the fundamental differences to how we operate currently – known institutionally as the ‘Big Shifts’. In particular, the workshop will identify and promote examples of existing great ways of working that align with this philosophy.

The workshop will be followed by a focus group, made up of a different, wider configuration of stakeholders involved in production and/or the Students First Transformation. This Group will help to validate the illustrative examples, informed by the workshop, with a view to ensuring its representation and generalisability.

Selecting participants

Invitations to the workshop have been issued to colleagues with the following roles:

- Module Team Chair
- Academic author
- Curriculum Manager
- Commissioner
- (Senior) TEL Designer
- Learning Designer
- Project Manager
- Editor
- Media specialist

Participants will be selected against the following criteria:

- They have recent practical knowledge and experience of the current production process.
• They understand the University’s need for change.
• They have experience of using one or more Agile methods OR
• They have some awareness of Agile Software Development, its principles, methods or practices

The maximum size of the workshop is 20 people.

What will the workshop be like?

The aim of the workshop is to identify and promote examples of existing great ways of working within the context of production. As well as looking back, this workshop provides an opportunity to look forward, using the Principles of Agile Development as a stimulus, and reimagine the future of curriculum design and development.

The workshop will take place in the Ambient Lab in the Jennie Lee Building in Milton Keynes. It will run for two hours. The event will be recorded for analysis of the methodology used for purposes of the EdD only; the recording will be available only to myself, as the EdD researcher, and my supervisors named below.

What will happen to the information I provide?

The information that you and other participants provide will be drawn together to inform development of the Agile scenarios, on behalf of the Teaching Excellence & Innovation workstream, to support discussion and decision making on the future of curriculum design and development. Anonymised contributions will also be used to inform further outputs of the EdD study, including the EdD thesis. Any personal information given will be confidential to the research team. Anonymity will be maintained within the thesis, and any subsequent published papers, so individuals are not identifiable.

Consent forms will be provided to you at the start of the workshop.

Our responsibilities to you

• We guard your privacy: your participation will be treated in strict confidence in accordance with the Data Protection Act. Individuals will not be identified in the final thesis or any subsequent published papers.
• We respect your wishes: participation in the study is voluntary. If you do not want to take part, just let the research team know when they contact you.
• We answer your questions: we will be happy to answer any questions you may have about the research.

Our contact information

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Appendix 9: Online focus group questionnaires

Developing an Agile toolkit (Part 1)

Page 1: General

This online focus group will contribute to the development of a toolkit to inform discussion, decision making and change within educational organisations who are considering adopting Agile methods and practices. The toolkit will contain illustrative scenarios of the implementation of Agile principles within the design and development of online learning content, a reflection aide for assessing current practice, and a tool to support the implementation of Agile principles.

You will need a copy of the draft toolkit to hand while you answer these questions. Please answer all questions.

The survey will be open until 12:01am on Monday 27 August 2018. You can complete it at any time.

All responses will be dealt with confidentially and will be anonymised in any published reports. Your participation or non-participation in this research will not be linked to you in any way.

Data Protection information

The data you provide will be used for research and quality improvement purposes at the University. The raw data will be seen and processed only by the University staff and its agents. This project is administered under the OU’s general data protection policy guidelines.

Please note: this survey has been designed for use on a desktop or laptop computer. We cannot guarantee full accessibility via a handheld device, such as an iPad or Smartphone.

If you have a disability or an additional requirement that makes it difficult for you to complete the survey online, or if you have any questions relating to this survey, please contact the researcher.

1. My role is:

2. I am based in (unit/dept):

Page 2: About your context

The questions in this section will help to provide wider context for your answers. Please do not submit any personal information (i.e. names) that would identify yourself or any other person.

It may be helpful to think of a specific example of producing online learning content when answering the following questions.
3. Please describe your responsibilities within your current/previous production context:

4. Outline briefly the process for the design and development of online learning at the OU (i.e. roles involved; how teams are organised and managed; methods and tools that are used):

5. What are the issues you face with the design and development of online learning content using your current processes?

6. What do you value in the design and development of online learning content at the OU (i.e. what works well)?

7. Are you familiar with the Agile movement; its principles, values and methods?
   - No - I am not familiar with it
   - Yes - I am familiar, but have not used it in my practice
   - Yes - I am familiar and I have used it in my practice

   7.a. If you answered 'Yes - I am familiar and I have used it in my practice', what has been the impact of Agile on your practice?

---

**Page 3: Development of a toolkit**

The questions in this section relate to the developing Agile toolkit (pp.7-10) you were sent.

8. Looking at the reflection aide (p.7), to what extent do the suggested criteria enable effective identification of the Agile principles in practice?

   8.a. Which criteria do you feel require the most “stretch” from what we do now? Why?
   8.b. As a practitioner, is there anything missing that you would expect to see?
   8.c. Do you have any other comments on the reflection aide?

9. Looking at the three scenarios (pp.8-10), how useful is dashboard assessment tool for capturing and determining aspects of practice that require change?

   9.a. As a practitioner, how effective do you think the fully developed tool (p.5), complete with guidance, will be for supporting the implementation of the Agile principles within practice?
   9.b. As a practitioner, what types of guidance for implementing change would you expect to see?
   9.c. Do you have any other comments on the dashboard assessment tool?

10. Looking at the three scenarios (pp.8-10), to what extent do the narrative descriptions offer a reasonable explanation of how practice could look and feel if the Agile principles were implemented?
10.a. As a practitioner, how useful are the narrative descriptions for supporting discussion and decision making on adopting Agile?

10.b. Do you have any other comments to make on the narrative elements of the scenarios?

Page 4: Implementing Agile principles

The questions in this section relate to the implementation of Agile principles within the design and development of online learning content.

11. Please rank the following Agile principles in order of importance for increasing agility (the ability to change or adapt) within the design and development of online learning content:

[Insert image]

12. Please rank the following Agile principles in order of importance for increasing collaboration within the design and development of online learning content:

[Insert image]

13. Please rank the following Agile principles in order of priority for driving change within the design and development of online learning content:

[Insert image]

14. What do you feel are the main barriers to implementing any or all of the Agile principles within the design and development of online learning content?

14.a. Do you have any other comments to make on the implementation of Agile principles within practice?

Page 5: Thank you

Thank you for completing this online questionnaire.

You will receive a shorter second questionnaire on Monday 3 September. It will be open for completion until 12.01am on 10 September 2018.

In the meantime, if you have any questions relating to this questionnaire or the study, please contact the researcher.

Developing an Agile toolkit (Part 2)

Page 1: General

This online focus group will contribute to the development of a toolkit to inform discussion, decision making and change within educational organisations who are
considering adopting Agile methods and practices. The toolkit will contain illustrative scenarios of the implementation of Agile principles within the design and development of online learning content, a reflection aide for assessing current practice, and a tool to support the implementation of Agile principles. Please answer all questions.

The survey will be open until 12:01am on Monday 10 September 2018. You can complete it at any time.

All responses will be dealt with confidentially and will be anonymised in any published reports. Your participation or non-participation in this research will not be linked to you in any way.

**Data Protection information**

The data you provide will be used for research and quality improvement purposes at the University. The raw data will be seen and processed only by the University staff and its agents. This project is administered under the OU’s general data protection policy guidelines.

Please note: this survey has been designed for use on a desktop or laptop computer. We cannot guarantee full accessibility via a handheld device, such as an iPad or Smartphone.

If you have a disability or an additional requirement that makes it difficult for you to complete the survey online, or if you have any questions relating to this survey, please contact the researcher.

1. My role is:

2. I am based in (unit/dept):

**Page 2: Context**

This section will help to build a consensus view on the issues faced within the design and development of online learning content at the OU, as well as what people value.

You were asked: What are the issues you face with the design and development of online learning content using your current processes?

You said:

1. Lack of access to tools to support and enable collaborative writing.
2. Version control caused by team members working at different times.
3. Silo and lone working.
4. Lack of visibility of progress, and what is hindering progress.
5. Too many emails about production.
6. Misalignment of budget expenditure deadlines with content development timescales; i.e. budget is set too early in the process, leading to inaccurate budget estimations.

7. Lengthy approval processes, and indecision and lack of understanding that quick decision making is needed.

8. Inability to build deeper working relationships as teams form and then disband.

9. Delays in handovers; early delays have a “domino effect” throughout production.

10. Slow or poor performing IT systems, and barriers between different design platforms.

11. Use of too many or outdated tools, and text-based processes.


3. Which parts of this summary do you agree with? Please explain why.

4. Which parts of this summary do you disagree with? Please explain why.

5. Is there anything that you think is missing and should be included?

You were asked: What do you value in the design and development of online learning content at the OU (i.e. what works well)?

You said:

1. Expertise of media specialists and other colleagues.

2. Ability of editors to enhance the quality of content and to provide constructive feedback and advice.

3. Enthusiasm and shared dedication within the team.

4. Flexibility of the production team to allow for innovation and reworking of content.

5. How accessibility is used to inform decision making.

6. Managerial support to keep coherence with other pathways on the programme, but also to provide space for the team to be able to fulfil their vision for a student experience.

7. Learning Design workshops.

8. Team work and opportunities to work with different colleagues from different teams.

9. Recruitment of interested and experienced tutors, to support production or provide hands-on tutorial support.

10. Being able to provide choice, flexibility and 24/7 access to students.
6. Which parts of this summary do you agree with? Please explain why. □ Required

7. Which parts of this summary do you disagree with? Please explain why. □ Required

8. Is there anything that you think is missing and should be included? □ Required

Page 3: Development of a toolkit

This section will help to build a consensus view on how best to develop the Agile toolkit.

Thoughts on the Reflection Aide

You were asked: Looking at the reflection aide (p.7), to what extent do the suggested criteria enable effective identification of the Agile principles in practice?

You said:

1. Design of the aide is familiar; it provides a clear and helpful framework and breakdown of activities, if not clunky.

2. Principles could be reordered and grouped together according to the context. Most of the criteria apply well, but unsure how the software development roots translate to education.

3. Principles are useful with some adaptation of language required, to ensure applicability.

4. Meeting face-to-face builds better relationships, but in practice this is only possible or practical irregularly.

5. Retrospectives are an important aspect of Agile, but this doesn’t come out clearly enough. Emphasise the importance of continuous learning and practical reflection.

9. Which parts of this summary do you agree with? Please explain why.

10. Which parts of this summary do you disagree with? Please explain why.

11. Is there anything that you think is missing and should be included?

You were asked: Which criteria do you feel require the most “stretch” from what we do now? Why?

You said:

General comments

- A lot of the criteria are a stretch from what we do now: there is too much bureaucracy, and long forms to complete and permissions to be sought for minor changes.
The amount of stretch required depends very much on the team and their previous experiences.

The original Agile principles are focused on creation of software products only. It may be a mental block for some to see e.g. a piece of text, image, book or even an eBook as a piece of software.

12. Which parts of this summary do you agree with? Please explain why.
13. Which parts of this summary do you disagree with? Please explain why.
14. Is there anything that you think is missing and should be included?

You were asked: As a practitioner, is there anything missing that you would expect to see?

You said:

1. Principle 7: 'Working software is the primary measure of progress' - this is a subtle but very important aspect of Agile, but the translation of it is rather limited. Should refer to Minimum Viable Product (MVP) and fitness-for-purpose - the idea being that if you're going for a gold standard product release but run out of cash half way, you can at lease release a bronze standard and get some benefits, rather than have to change the release date and spend more money.

2. How the concept of an MVP applies to text and graphics.

3. Communication

4. How Agile views relationships between different teams.

5. Students are not the only stakeholders.

15. Which parts of this summary do you agree with? Please explain why.
16. Which parts of this summary do you disagree with? Please explain why.
17. Is there anything that you think is missing and should be included?

**Thoughts on the Dashboard Assessment Tool**

You were asked: Looking at the three scenarios (pp.8-10), how useful is dashboard assessment tool for capturing and determining aspects of practice that require change?

You said:

1. The tool is nice, simple and useful, especially when starting up a new team.

2. Useful tool to help identify levels of engagement and as a means for comparison.

3. Use of phases (walking, running, sprinting) is helpful, if they can be adapted into becoming part of the team’s language.
4. Own experience was recognised in the first scenario; able to see the progression through the three scenarios.

5. Trust is a key component. If trust is given, there may not be a need for regular daily and face-to-face communication.

6. Unable to see the benefit in making a distinction in scoring agility and responsiveness separately from collaboration. Possibly include just one RAG status for each principle.

18. Which parts of this summary do you agree with? Please explain why.

19. Which parts of this summary do you disagree with? Please explain why.

20. Is there anything that you think is missing and should be included?

You were asked: As a practitioner, how effective do you think the fully developed tool (p.5), complete with guidance, will be for supporting the implementation of the Agile principles within practice?

You said:

1. It has the potential to be effective, but needs to come across as a guide rather than a “sales pitch”.

2. Effectiveness is dependent on the buy-in from and level of understanding of teams. The wider picture should be considered.

3. Being presented with a table of red indicators could be quite off-putting at the start.

4. The three scenarios can be seen as highlighting different aspects of the principles. Can these different aspects of the principles carry their own RAG rating to show how each can contribute?

5. Specific guidance will enable it to be effective at an individual and group level. Guidance could also be supported by people with some experience and supplemented with exemplars and success stories.

21. Which parts of this summary do you agree with? Please explain why.

22. Which parts of this summary do you disagree with? Please explain why.

23. Is there anything that you think is missing and should be included?

You were asked: As a practitioner, what types of guidance for implementing change would you expect to see?

You said:

1. Cultural and organisational change is needed first. Guidance can be offered in more ways than just the written form; e.g. modelling and sharing of knowledge is also useful.
2. Include examples of how things have been put into practice that the team can choose from, as well as positive stories that show practical benefits.

3. Include questions to ask of the team at the start and when reviewing the process.

4. Include a FAQ section to provide further support; focus groups and mentoring.

5. Include guidance on how to get everyone to commit to working in a similar way, and to an understood vision.

6. Provision for personal action plans that are linked to group/team/institutional plans.

24. Which parts of this summary do you agree with? Please explain why.

25. Which parts of this summary do you disagree with? Please explain why.

26. Is there anything that you think is missing and should be included?

**Thoughts on the Narrative Descriptions**

You were asked: Looking at the three scenarios (pp.8-10), to what extent do the narrative descriptions offer a reasonable explanation of how practice could look and feel if the Agile principles were implemented?

You said:

1. The descriptions do offer a reasonable and useful explanation, with an emphasis on key words. However, they are too general, more detail is needed.

2. The transitional phases (walking, running, sprinting) are a nice metaphor.

3. Could make more of the aligning, adopting and adapting references.

4. Imagery and layout is nice, but confusing.

5. Would like to see means of assessing the statements in the narrative description; comes across as a complicated health check.

27. Which parts of this summary do you agree with? Please explain why.

28. Which parts of this summary do you disagree with? Please explain why.

29. Is there anything that you think is missing and should be included?

You were asked: As a practitioner, how useful are the narrative descriptions for supporting discussion and decision making on adopting Agile?

You said:

1. Inclusion of questions to accompany the scenarios would be useful; some indication of how you evidence the emphasised statements would add value.
2. Good for starting and supporting discussion around Agile, culture and change.

3. Offers a “real world approach” to a model in that it takes time to change; Agile is about continuous improvement.

4. The narratives are software-focused even though Agile is used in other contexts.

30. Which parts of this summary do you agree with? Please explain why.

31. Which parts of this summary do you disagree with? Please explain why.

32. Is there anything that you think is missing and should be included?

**Page 4: Implementing Agile principles**

This section will help to build a consensus view on the importance and priority of Agile principles, and barriers to their implementation.

Agile principles ranked as highly important for increasing agility within the design and development of online learning content*:

33. Which parts of this summary do you agree with? Please explain why.

34. Which parts of this summary do you disagree with? Please explain why.

35. Is there anything that you think is missing and should be included?

36. Which parts of this summary do you agree with? Please explain why.

37. Which parts of this summary do you disagree with? Please explain why.

38. Is there anything that you think is missing and should be included?

You were asked: What do you feel are the main barriers to implementing any or all of the Agile principles within the design and development of online learning content?

You said:

1. Cultural change, historical baggage and the ability to learn new ways of working.

2. Lack of trust and the inability to guarantee enthusiasm or commitment.

3. Disparate, large teams, and teams where not all members are “team players”.

4. No shared understanding of the same agenda, nor of the “output”.

5. Working in silos and the lack of time for daily and/or face-to-face meetings.

6. Competing processes running to different timescales.

7. Incompatible software systems or tools that are not fit for purpose.
8. Agile exhaustion – there has been a lot of talk about it already; Agile works in some situations, not others.

39. Which parts of this summary do you agree with? Please explain why.

40. Which parts of this summary do you disagree with? Please explain why.

41. Is there anything that you think is missing and should be included? * Required

Page 5: Thank you

Thank you for completing this online questionnaire, and for participating in the focus group. Analysis will commence from 10 September 2018.

In the meantime, if you have any questions relating to this questionnaire or the study, please contact the researcher.
DEVELOPING AN AGILE TOOLKIT

Implementing the Agile philosophy within the design and development of online learning content

Online focus group material

What is Agile?

The Agile Philosophy is an approach underpinned by a common set of values of principles derived from the numerous methods that sit under the "Agile" umbrella. The Agile Alliance define Agile as "the ability to create and respond to change in order to succeed in an uncertain and turbulent environment. Agile methods produce solutions that have evolved through collaboration between self-organising, cross-functional teams who are able to use Agile practices that suit their context.

2 https://craigsmith.id.au/2016/02/03/40-agile-methods-goes-open-source/

As illustration of the many Agile methods available.
WHAT IS AGILE?

Overview

In 2001, a group of developers and advocates of different Agile methods met together to produce a unifying set of values and principles – the Agile Manifesto. Together, these drive the behaviours necessary for Agile practices to be effective.

The Agile Philosophy

<table>
<thead>
<tr>
<th>Agile Principles</th>
<th>The Agile Philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.</td>
<td>Customer Collaboration Over Contract Negotiation</td>
</tr>
<tr>
<td>2. Welcome changing requirements, even late in development. Agile processes harness change for the customer’s competitive advantage.</td>
<td>Individual and Interactions Over Processes and Tools</td>
</tr>
<tr>
<td>3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.</td>
<td>Working Software Over Comprehensive Documentation</td>
</tr>
<tr>
<td>4. Business people and developers must work together daily throughout the project.</td>
<td>Responding to Change Over Following a Plan</td>
</tr>
<tr>
<td>5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.</td>
<td></td>
</tr>
<tr>
<td>6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.</td>
<td></td>
</tr>
</tbody>
</table>

ABOUT THIS TOOLKIT

Please read

Background to the study

The Students First Strategy was launched in July 2016 to address how we can meet the needs of current and future students in a changing and challenging external environment. A project (OU Redesign) was commissioned to redesign the operating model of the University to put us in the best possible position to meet this challenge.

One of the outputs from this project was a set of “Big Shifts”, of which one states: All curriculum elements will be designed, developed, and scaled in agile ways, and to respond to the needs and feedback of end users, through highly collaborative, creative and efficient processes. These processes will be developed and used across different propositions. Within the toolkit, this need is articulated as two key drivers for the implementation of the Agile philosophy within the design and development of online learning content:

- Increased agility and responsiveness
- Increased collaboration

Agile has been part of the OU’s narrative for the last few years. The Minerva programme was developed to inspire and support faculties in devising and scaling new models of curriculum design and module production, using Agile principles, innovative pedagogies and new technology. Building on the findings from Minerva, the Agile Transformation project aims to equip the OU to produce online modules and other digital learning products in time-efficient and cost-effective ways, and to respond to the needs and feedback of end users, through highly collaborative, creative and exciting ways of working together. The study will build upon and complement this work to date.

Phase one: Developing a set of Agile scenarios

In March 2018, a design workshop was organised with stakeholders from across production, including Module Team Chairs, Authors, Commissioners, Curriculum managers, Project Managers, TEL Designers, Learning Designers and Editors. The workshop was limited to 20 participants. The aim of the workshop was to identify and promote examples of existing great ways of working within the context of production.

Outputs from the workshop were used to establish a “baseline” starting point (i.e. current practice that already aligns with Agile) for a set of illustrative scenarios that depict how production could look and feel like if the Agile philosophy was fully implemented over time. As well as looking back, this workshop provided an opportunity to look forward, using the Agile principles as stimuli, and reimagining the future of production. This provided a baseline vision for an ideal future state. The set of scenarios are included within the toolkit to provide a narrative to accompany the tools that are being developed: a reflection aide and a “dashboard” assessment tool. These tools were populated based on findings from the workshop, and are intended to show a worked example of how the toolkit can be used.

Phase two: Developing the Agile toolkit

It is intended that educational organisations can use the toolkit to increase and improve their agility, responsiveness and collaboration. The scenarios will help practitioners within those organisations to understand and visualise how Agile-informed practice could look and feel in order to support discussion and decision making. To facilitate the implementation of the Agile principles, a reflection aide will help access current practice against a set of tested criteria. A “dashboard” tool will enable practitioners to score their practice accordingly, identifying areas to emphasise and embed those behaviours and actions that align with Agile. The online focus group will help build a picture of priority areas where additional support and guidance are needed as teams progress towards Agile adoption.
The dashboard tool enables practitioners to score their practice against the criteria set out in the reflection aide, to identify those actions and behaviours that need to be emphasised and/or the priority areas where additional actions and support are required.

### Agilit and Responsiveness

<table>
<thead>
<tr>
<th>Pre-online focus group</th>
<th>Post-online focus group (example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do your highest priority is to satisfy the customer through early and continuous delivery of valuable software</td>
<td>Our highest priority is to satisfy the customer through early and continuous delivery of valuable software</td>
</tr>
<tr>
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</tr>
<tr>
<td>Business people and developers must work together daily throughout the project</td>
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</tr>
<tr>
<td>Building projects around motivated individuals. Get them the environment and support they need, and trust them to get the job done</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Working software is the primary measure of progress</td>
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</tr>
<tr>
<td>Agile processes promote sustainable development. The sponsors, developers, and users must work together daily throughout the project in a constant, evolutionary process</td>
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</tr>
<tr>
<td>Continuous attention to technical excellence and good design enhances agility</td>
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</tr>
<tr>
<td>Simplicity—the art of maximizing the amount of work not done—is essential</td>
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</tr>
<tr>
<td>The best architectures, requirements, and designs emerge from self-organizing teams</td>
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</tr>
<tr>
<td>At regular intervals, the team reflects on how to becoming more effective, then tunes and adjusts its behaviour accordingly</td>
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</tr>
</tbody>
</table>

### Collaboration

| Low | Medium | High |

### The Toolkit

- Reflection aide
- Illustrative scenarios featuring a worked example of the Dashboard tool
ASSESSING AGILE PRINCIPLES IN PRACTICE

This reflection aide will help to uncover evidence of the Agile principles in practice as well as identify areas for action.

<table>
<thead>
<tr>
<th>Agile principle</th>
<th>This means teams are...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Our highest priority is to satisfy the customer through early and continuous delivery of valuable software</td>
<td>Aware of what students need and how the new curriculum fits with the strategic priorities</td>
</tr>
<tr>
<td>2 Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage</td>
<td>Publishing content at regular intervals, and not at the end of the production</td>
</tr>
<tr>
<td>3 Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale</td>
<td>Breaking down tasks into deliverable chunks</td>
</tr>
<tr>
<td>4 Business people and developers must work together daily throughout the project</td>
<td>Working in clearly defined sprints</td>
</tr>
<tr>
<td>5 Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done</td>
<td>Empowerment to take decisions</td>
</tr>
<tr>
<td>6 The most efficient and effective method of conveying information about a project is face-to-face conversation</td>
<td>Flexible according to demands</td>
</tr>
<tr>
<td>7 Working software is the primary measure of progress</td>
<td>Creating prototypes</td>
</tr>
<tr>
<td>8 Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely</td>
<td>Testing content with users</td>
</tr>
<tr>
<td>9 Continuous attention to technical excellence and good design enhances agility</td>
<td>Building feedback into the next iteration</td>
</tr>
<tr>
<td>10 Simplicity—the art of maximizing the amount of work not done—is essential</td>
<td>Regularly reviewing the plan to ensure it remains achievable</td>
</tr>
<tr>
<td>11 The best architectures, requirements, and designs emerge from self-organizing teams</td>
<td>Making up of the right staff with the right skills</td>
</tr>
<tr>
<td>12 Regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly</td>
<td>Able to understand and agree on what “good enough” looks like</td>
</tr>
</tbody>
</table>

http://agilemanifesto.org/principles.html

SCENARIO ONE: WALKING

This scenario emphasises the current process, product, practice and people aspects of the design and development of online learning content that colleagues value.

A consistent and enthusiastic team is brought together to design and develop new online learning content. All roles and responsibilities are respected, agreed and made explicit at a start-up meeting. A Project Manager works with a faculty-based Chair to provide both leadership and management, ensuring the team have a shared understanding of the priorities and how to escalate risks and issues. Some specialist roles, such as an e-learning expert, are also included to support production. Additional expertise and knowledge is pulled in as and when required.

The team take a light-touch approach to Learning Design in order to gain a common understanding of the learning content, its prospective students, and how it will be produced. This is supplemented with data analytics to help understand student behaviour. Ample time is provided for upfront planning and scheduling (e.g., specification), to minimise the need for change. Ample time is also provided for the drafting process, with extra built in for reviewing and feedback. For example, in the middle of the process, students, the Editor and critical readers, some of the team communicate regularly through face-to-face meetings or through ad-hoc discussion. Collaborative relationships are built over time, primarily through the stable team structure. Documentation is stored centrally, either on a server or a shared online workspace.

"People care and are enthusiastic so go the extra mile"
**SCENARIO TWO: RUNNING**

<table>
<thead>
<tr>
<th>Alignment</th>
<th>Adoption</th>
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<tbody>
<tr>
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<tr>
<td>Short-term</td>
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<tr>
<td>Agile principles evidenced in this scenario</td>
<td>🟣</td>
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</tbody>
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2. Welcome changing requirements, even late in development; Agile processes harness change for the customer’s competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
4. Business people and developers must work together daily throughout the project.
5. Build around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The teams, developers, and users must be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity – the art of maximizing the amount of work not done is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. A more cooperative, less adversarial, more active role for business people in helping management support the team’s activities.

A small team is brought together to design and develop new online learning content. All roles and responsibilities are resourced, assigned, and made clear at a face-to-face meeting. Roles include a Project Manager and a faculty-based Editor who provide both strategic leadership and management when needed. Ensuring the team have a shared understanding of the process and how to execute roles and issues. Additional existing roles provide business perspectives (i.e. a Commissioner or special skills (i.e. an Editor, Learning Designer), and are pulsed in as and when required.

A Learning Design workshop involves the eight people at the right time to ensure the team understands the strategies behind the learning content, enabling them to prioritise requirements and agree quality as they carry out appropriate analysis and design upfront. Work is planned according to the priorities and scheduled into phases of time. Time and space is factored in early on and throughout for review and feedback of prototype content with students, the Editor and critical readers.

The core team communicate face-to-face weekly, either informally or through scheduled meetings. Sharing progress helps to build a shared team understanding of the project documentation is produced, produced by the rights and is accessible to the whole team in a shared online workspace.

Following delivery of key requirements, the team take time to reflect on what went well, and what can be improved. Insights are captured via a Lessons Learned log.

**“Quick catch up work well with the module team – 10-15 mins every week”**

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**SCENARIO THREE: SPRINTING**

<table>
<thead>
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10. Simplicity – the art of maximizing the amount of work not done is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. A more cooperative, less adversarial, more active role for business people in helping management support the team’s activities.

A dynamic and committed team collaborate to design and develop new online learning content. All roles and responsibilities are agreed and made clear at the start. A dedicated Sponsor provides strong leadership throughout, empowering the team as it can operate efficiently. A Project Manager ensures the team have a shared understanding of the process and how to escalate risks and issues, but does not actively direct the team. A Business Analyst is brought to the team to understand the requirements and role of the team in the learning of the team.

A workshop involves the team, plus the Sponsor and 1-2 users, to ensure that they understand the strategies behind the project, are able to agree the quality upfront, and establish the prioritisation of requirements and deliverables, and agree that they will be delivered within a fixed period of time. This forms the basis of the Business Case. A Learning Design workshop enables appropriate level of design upfront.

A Delivery Plan provides a high-level schedule of project milestones which include time for feedback and iteration. A Timeline Plan provides the detail. Through iterative development, the qualification evolves from the high-level concept into something of value as content is released. Major, Low content is updated as appropriate. The team use a variety of tools to model development against the priorities, including storyboards, process diagrams and prototypes.

The team communicate face-to-face via a daily stand up and retrospective events, to refocus on progress and the functioning of the team. Regular honest and transparent sharing of progress helps to reinforce the one-team culture. Feedback contributes to the review of the project.

Documentation is lean and timely. It is accessible to anyone via a shared online workspace. **“Everyone buys into the collaborative culture and respects what others contribute”**
Appendix 11: Information leaflet for the main study (focus group)

Human Research Ethics Committee

Research study participant information sheet for ‘Visioning the future of Curriculum design and development’ (Part 2)

Research study contacts

[Removed]

Following the recent open call for participation, you are invited to take part in this research study. Before you decide whether or not you still wish to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

As a member of staff, choosing to either take part or not take part in the study will have no impact on your evaluation and progression at work.

General information about the research study

This research study is exploring how the future of curriculum design and development could look and feel. This work builds on a pilot study, conducted as part of my Doctorate in Education (EdD) research, which investigated production practices across different education-related organisations.

This part of the study follows on from a workshop that took place earlier this year in which colleagues from across production helped to inform the development of a set of illustrative scenarios. These scenarios included examples of how the philosophy underpinning Agile Software Development might be implemented within the University, to drive behaviours and actions that push us towards a culture of agility, collaboration and responsiveness, and improve production efficiency.

This part of the study takes the form of an online focus group whose contributions will inform the development of a “toolkit” to inform discussion and decision making within educational organisations who are considering transforming their practice. The toolkit will contain illustrative scenarios depicting a possible future of curriculum design and development, a tool for assessing current practice, and guidance on how to implement Agile principles.

The online focus group will be administered by Sarah Bridgman, who is a member of OU staff and a doctoral research student. The research team is made up of Allison Littlejohn (LTI Academic), and Gareth Davies (LTI Academic).

This research project has been reviewed by, and received a favourable opinion, from the OU Human Research Ethics Committee - HREC reference number: HREC/2782/Bridgman
What will I be asked to do if I agree to take part?

Below is an outline of what participation in the online focus group entails:

<table>
<thead>
<tr>
<th>Timescale</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/C 6 Aug</td>
<td>Invitation to participate is issued via networks and the intranet</td>
</tr>
<tr>
<td>W/C 20 Aug</td>
<td>Participants are confirmed and issued with a consent form, the draft</td>
</tr>
<tr>
<td></td>
<td>toolkit, and the link to the online questionnaire</td>
</tr>
<tr>
<td>W/C 27 Aug</td>
<td>Researcher summarises the first round of responses and shares with the</td>
</tr>
<tr>
<td></td>
<td>group in the form of a second online questionnaire</td>
</tr>
<tr>
<td>W/C 3 Sept</td>
<td>Participants complete the second online questionnaire</td>
</tr>
<tr>
<td>W/C 10 Sept</td>
<td>Focus group ends</td>
</tr>
<tr>
<td>W/C 10 Sept</td>
<td>Analysis starts</td>
</tr>
</tbody>
</table>

It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

Your participation will help to further our understanding of this topic and provide a tangible output that can be used to shape and inform our future practice.

How will the data I provide be used?

- Data will be collected via the third-party tool Jisc Online Surveys, which is the recommended online survey system at the OU. This tool stores data within the EU and so is compliant with the most up-to-date data protection legislation. Downloaded data will be stored on a secure server (within the EU) for ten years.
- Any personal information collected (such as your name) will not be shared beyond the study team and all quotes and responses will be anonymised. The survey itself will not ask for your name, only your job role and unit/department.
- The information that you and other participants provide will be drawn together to inform the ongoing development of the Agile toolkit, to support discussion and decision making on the future of curriculum design and development. Anonymised contributions will also be used to inform further outputs of the EdD study, including the EdD thesis. Anonymity will be maintained within the thesis, and any subsequent published papers, so individuals are not identifiable.
- It is possible that the focus group data (in the form of de-identified transcripts) may be deposited in a specialist data centre after it has been anonymised, so it can be used for future research and learning.
Data Protection
The Open University is the Data Controller for the personal data that you provide. The lawful reason for processing your data will be that conducting academic research is part of The Open University’s public task. (The consent we request from you relates to ethical considerations).

You have a number of rights as a data subject:

• To request a copy of the personal data we have about you
• To rectify any personal data which is inaccurate or incomplete
• To restrict the processing of your data
• To receive a copy of your data in an easily transferrable format (if relevant)
• To erase your data
• To object to us processing your data

If you are concerned about the way we have processed your personal information, you can contact the Information Commissioner’s Office (ICO).

Your right to withdraw from the study

• You have the right to withdraw from the study at any time during your participation by contacting the researcher (email removed). You do not have to provide a reason.
• You have the right to ask for your data to be removed after your participation in the study by contacting the researcher, up until the time all data have been aggregated for analysis.

How do I agree to take part?
You can “opt in” to the study by signing and returning the consent form by post or email.

Please post paper forms to:
[Removed]

Thank you

Thank the individual for taking time to read this information sheet.
Appendix 12: Consent form templates

Consent form for persons participating in a research project

Investigating agile production methods

Name of participant:
Name of principal investigator(s): SARAH BRIDGMAN

1. I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written statement in plain language to keep.

2. I understand that my participation will involve an interview and I agree that the researcher may use the results as described in the plain language statement.

3. I acknowledge that:
   a. I have been informed that I am free to withdraw from the project without explanation or prejudice and to request the destruction of any data that have been gathered from me until it is anonymised at the point of transcription on 31st October 2016. After this point data will have been processed and it will not be possible to withdraw any unprocessed data I have provided;
   b. the project is for the purpose of research;
   c. I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements;
   d. I have been informed that with my consent the data generated will be stored on a secure university server and will be destroyed after five years;
   e. If necessary any data from me will be referred to by a pseudonym in any publications arising from the research;
   f. I have been informed that a summary copy of the research findings will be forwarded to me, should I request this.

I consent to this interview being audio-taped/video-recorded

☐ yes  ☐ no (please tick)

I wish to receive a copy of the summary project report on research findings

☐ yes  ☐ no (please tick)

Participant signature: Date:
Consent form for persons participating in a research project
VISIONING THE FUTURE OF CURRICULUM DESIGN AND DEVELOPMENT

Name of participant: 
Name of principal investigator: SARAH BRIDGMAN

1. I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written statement in plain language to keep.

2. I understand that my participation will involve attending a WORKSHOP and I agree that the researcher may use the results as described in the plain language statement.

3. I acknowledge that:

   a. the possible effects of participating in this research have been explained to my satisfaction

   b. I have been informed that I am free to withdraw from the project without explanation or prejudice and to request the destruction of any data that have been gathered from me until it is anonymized at the point of transcription. After this point data will have been processed and it will not be possible to withdraw any unprocessed data I have provided

   c. the project is for the purpose of research in addition to the development of a set of illustrative examples that will be used by colleagues within LTI and/or Teaching Excellence & Innovation

   d. I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements

   e. I have been informed that with my consent the data generated will be stored on a secure University server and will be destroyed after five years

   f. I have been informed that anonymised research data may be made available to other members of the research community for a period of 10 years

   g. If necessary, any data from me will be referred to by a pseudonym in any publications arising from the research

   h. I have been given contact details for a person whom I can contact if I have any concerns about the way in which this research project is being conducted

   i. I have been informed that a summary copy of the research findings will be forwarded to me, should I request this.
I consent to this WORKSHOP being VIDEO-RECORDED
☐ yes  ☐ no (please tick)

I wish to receive a copy of the summary project report on research findings
☐ yes  ☐ no (please tick)

Email address to which a summary should be sent: [Removed]

Participant signature:
Date:

Contact details for the Principal Investigator (PI) and Research organisation and Faculty:
[Removed]

Contact details for an alternative contact if you have any concerns about the way the research project is being conducted:
[Removed]

This research has been reviewed by, and received a favourable opinion, from the OU Human Research Ethics Committee - HREC reference number: HREC/2782/Bridgman (http://www.open.ac.uk/research/ethics/).
1. Taking part in the study

Please tick the appropriate boxes:

I have read and understood the study information sheet or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.

☐ ☐

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time up until the data have been analysed, without having to give a reason.

☐ ☐

I understand that taking part in the study involves participating in an asynchronous online focus group.

☐ ☐

2. Use of the information in the study

I understand that information I provide will be used for the purpose of developing a “toolkit” to inform discussion and decision making within educational organisations who are considering transforming their practice. The toolkit will contain illustrative scenarios depicting a possible future of curriculum design and development, a tool for assessing current practice, and guidance on how to implement Agile principles.

Anonymised contributions will also be used to inform further outputs of the EdD study for wider publication, including the EdD thesis.

Please tick the appropriate boxes:

I understand that personal information collected about me that can identify me, such as my name, will not be shared beyond the study team.

☐ ☐

I understand that my data will be stored on a secure server (within the EU) for ten years.

☐ ☐

I agree that my information can be quoted anonymously in research outputs.

☐ ☐
3. Future use and reuse of the information by others

I give permission for the focus group data (in the form of de-identified transcripts) that I provide to be deposited in a specialist data centre after it has been anonymised, so it can be used for future research and learning.

4. Signatures

________________________________________  ______________________________________  __________________________

Name of participant [IN CAPITALS]        Signature                      Date

This research project has been reviewed by, and received a favourable opinion, from the OU Human Research Ethics Committee - HREC reference number: HREC/2782/Bridgman
Appendix 13: Raw data

Structured interview data

Table 35: Findings from the pilot: Comparing production practices

<table>
<thead>
<tr>
<th>Comparing production practices</th>
<th>Interviewee 1</th>
<th>Interviewee 2</th>
<th>Interviewee 3</th>
<th>Interviewee 4</th>
<th>Interviewee 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching context</strong></td>
<td>Online or Blended (online, print, face-to-face)</td>
<td>Online or Blended (online and face-to-face)</td>
<td>Online or Blended (online, print, face-to-face)</td>
<td>Online only</td>
<td>Online or Blended (online and face-to-face)</td>
</tr>
<tr>
<td><strong>Production process in use</strong></td>
<td>Print production model</td>
<td>Mixed process</td>
<td>No standard process</td>
<td>Dynamic Systems Development Method (DSDM)</td>
<td>Institutional Learning Design framework (optional)</td>
</tr>
</tbody>
</table>
| **People involved**           | Faculty member  
Course production coordinator  
Learning designer  
Subject matter expert  
Editor  
Graphic designer  
Online production staff  
Library | Project owner  
Unit convener  
Project manager  
Project officer  
Senior learning designer  
Learning designer  
Media specialist (optional) | Teacher  
Programme manager  
Educational specialist (optional)  
Editor (optional)  
AV specialist (optional) | Product manager  
Project manager  
Editorial team member  
Designer  
Business analyst  
Developer  
Tester | Programme director  
Course director  
Academic  
Library  
representative  
IT consultant  
Educational development representative  
Learning technologist |
<table>
<thead>
<tr>
<th>Methods (M), practices (P) or tools (T) used</th>
<th>representative</th>
<th>Methods (M), practices (P) or tools (T) used</th>
<th>representative</th>
<th>Methods (M), practices (P) or tools (T) used</th>
<th>representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasional face-to-face meeting (P)</td>
<td>Gantt system (M)</td>
<td>Online learning environment (T)</td>
<td>Online learning environment (T)</td>
<td>Brainstorming workshop (P)</td>
<td>Workshop (P)</td>
</tr>
<tr>
<td>Word document (T)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Design sprint (P)</td>
<td>Storyboarding (M)</td>
</tr>
<tr>
<td>Online learning environment (T)</td>
<td>Showcase activity (P)</td>
<td>Gantt system (M)</td>
<td>Gantt system (M)</td>
<td>Daily stand-up (P)</td>
<td>Action plan (T)</td>
</tr>
<tr>
<td></td>
<td>Online learning environment (T)</td>
<td>Gantt system (M)</td>
<td>Gantt system (M)</td>
<td>Hack day (P)</td>
<td>Skype (T)</td>
</tr>
<tr>
<td></td>
<td>Gantt system (M)</td>
<td>Gantt system (M)</td>
<td>Workshop (P)</td>
<td>Three Amigos Meeting (P)</td>
<td>Google Docs (T)</td>
</tr>
<tr>
<td></td>
<td>User testing (M)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>User testing (M)</td>
<td>Popplet (T)</td>
</tr>
<tr>
<td></td>
<td>A/B testing (M)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>A/B testing (M)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MoSCoW12</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>MoSCoW12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>prioritisation (M)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>prioritisation (M)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prototyping (M)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Prototyping (M)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kanban (M)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Kanban (M)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trello (T)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Trello (T)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jira (T)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Jira (T)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lync (T)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Lync (T)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Google Hangout (T)</td>
<td>Workshop (P)</td>
<td>Workshop (P)</td>
<td>Google Hangout (T)</td>
<td></td>
</tr>
<tr>
<td>Project management methodology in use</td>
<td>No specific methodology; faculties developing</td>
<td>No specific methodology; faculties developing</td>
<td>No specific methodology; faculties developing</td>
<td>No specific methodology; faculties developing</td>
<td>No specific methodology; faculties developing</td>
</tr>
<tr>
<td></td>
<td>Project-based approach</td>
<td>Project-based approach</td>
<td>Project-based approach</td>
<td>Agile approach</td>
<td>Academic methodology; academic member</td>
</tr>
<tr>
<td></td>
<td>No specific methodology</td>
<td>No specific methodology</td>
<td>No specific methodology</td>
<td>Agile approach</td>
<td>Academic methodology; academic member</td>
</tr>
</tbody>
</table>

12 MoSCoW is a method of prioritisation used for determining which requirements a product must have, should have, could have and won’t have
<table>
<thead>
<tr>
<th>Issues with current process</th>
<th>Benefits of current process</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Relay race” handover process is too slow</td>
<td>Better quality courses</td>
</tr>
<tr>
<td>Production people involved too late in the process</td>
<td>Improved communication and collaboration in some areas</td>
</tr>
<tr>
<td>Unable to make changes</td>
<td>Saving time</td>
</tr>
<tr>
<td>Delays caused responding to change</td>
<td>Greater efficiency</td>
</tr>
<tr>
<td>Limited pedagogical training</td>
<td>Sharing practice</td>
</tr>
<tr>
<td>High workload</td>
<td>Building knowledge of what can be achieved online</td>
</tr>
<tr>
<td>No actual plan; production driven by learning outcomes</td>
<td>Ability to make changes to content</td>
</tr>
<tr>
<td>Lack of time</td>
<td>Ability to capitalise on new information</td>
</tr>
<tr>
<td>Lack of resource</td>
<td>Responding to change</td>
</tr>
<tr>
<td>Absence of pedagogical model</td>
<td>Greater flexibility</td>
</tr>
<tr>
<td>Absence of logistical (production) model</td>
<td>Increased efficiency in terms of time and cost</td>
</tr>
<tr>
<td>Lack of testing</td>
<td>Optional process ensures people who engage are motivated</td>
</tr>
<tr>
<td>Strong project history and culture</td>
<td>Sharing practice across courses and disciplines</td>
</tr>
<tr>
<td>Difficulty in shifting mindset to continuous delivery</td>
<td>Cross-fertilisation of ideas</td>
</tr>
<tr>
<td>Expectation of detailed specification upfront</td>
<td>Changing mindsets in relation to design for online learning</td>
</tr>
<tr>
<td>Difficulty in selling the concept of a Minimum Viable Product</td>
<td>Bridging the gap between MOOC production and online course production</td>
</tr>
<tr>
<td>Estimating how long tasks take</td>
<td></td>
</tr>
</tbody>
</table>

263
| Improves the student learning experience | Enables collaborative design |
### Poster activity transcripts

Table 36: Black Hat poster activity transcript

<table>
<thead>
<tr>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Focus on writing modules rather than designing learning activities</td>
<td>Writing; Module</td>
</tr>
<tr>
<td>2. <strong>Current academic resource model needs to change</strong> for Agile to work; not intensely resourced (currently) to do Scrum**</td>
<td>Resource; Process</td>
</tr>
<tr>
<td>3. Too bureaucratic / hard to innovate</td>
<td>Process</td>
</tr>
<tr>
<td>4. Other bits of the University assuming all subjects should be taught &amp; produced in the same way</td>
<td>Production</td>
</tr>
<tr>
<td>5. Module teams unfamiliar with VLE so don't write appropriately (too long/not chunked) so editing takes a long time</td>
<td>Writing; Time</td>
</tr>
<tr>
<td>6. Not enough time for drafts and reworking</td>
<td>Time</td>
</tr>
<tr>
<td>7. Poor feedback loop e.g. student feedback</td>
<td>Process</td>
</tr>
<tr>
<td>8. Forecasting budgets a long way in advance of production</td>
<td>Process</td>
</tr>
<tr>
<td>9. Module specifications (REP03) currently operates across Planet + curriculum system. Confusing working across 2 systems, easy to crash the system putting data in the wrong fields</td>
<td>Systems</td>
</tr>
<tr>
<td>10. High staff turnover for some roles</td>
<td>Staff</td>
</tr>
<tr>
<td>11. Lack of clarity around roles &amp; responsibilities</td>
<td>Team</td>
</tr>
<tr>
<td>12. Feels like we do stuff because we've always done it that way</td>
<td>Process</td>
</tr>
<tr>
<td>13. OU systems don't join up. A lot of duplicate work going on with no one version of the truth</td>
<td>Systems</td>
</tr>
<tr>
<td>14. Module teams unfamiliar with production process</td>
<td>Process</td>
</tr>
<tr>
<td>15. Too much time talking not enough doing</td>
<td>Time</td>
</tr>
<tr>
<td>16. Long timelines</td>
<td>Time</td>
</tr>
<tr>
<td>17. Speed - too many people involved - takes too much time to do anything</td>
<td>Time</td>
</tr>
<tr>
<td>18. A proper resource bank for existing assets</td>
<td>Thinking</td>
</tr>
<tr>
<td>19. Not enough joined-up thinking for quals/suites of mods</td>
<td>Resource; Time</td>
</tr>
<tr>
<td>20. Academic resource to produce materials quickly</td>
<td>Resource; Time</td>
</tr>
<tr>
<td>21. Silos divide people/create tension</td>
<td>Culture</td>
</tr>
<tr>
<td>22. Distributed information</td>
<td></td>
</tr>
<tr>
<td>23. Unexperienced academics/chairs on module teams</td>
<td>Skills; Team</td>
</tr>
<tr>
<td>24. Not enough thinking time (RE content)</td>
<td>Thinking; Team</td>
</tr>
<tr>
<td>25. Staff changes (module team &amp; LTI) during production</td>
<td>Resource</td>
</tr>
<tr>
<td>26. If staff could focus on getting production done, rather than being pulled in different directions, we'd be more focussed &amp; get things done more quickly &amp; cheaper</td>
<td>Resource</td>
</tr>
<tr>
<td>27. Stage-gate process takes too long - too many blockers</td>
<td>Process; Time</td>
</tr>
<tr>
<td>28. Confuse mode &amp; method study/learning</td>
<td></td>
</tr>
<tr>
<td>29. We try to cram in too much into our modules. <strong>Student workload!</strong></td>
<td>Workload</td>
</tr>
<tr>
<td>30. <strong>Time lags due to workloads.</strong> Often you might hand something over and then not see it for a while, meaning having to re-</td>
<td>Time; Workload</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>31.</td>
<td>REP03 <strong>created a long time in advance</strong> - it is difficult to finalise certain elements</td>
</tr>
<tr>
<td>32.</td>
<td>The <strong>Approval process is still v. print centric</strong> in terms of the REP0s. The paperwork has not been revised for a number of years</td>
</tr>
<tr>
<td>33.</td>
<td><strong>Bureaucracy - a lot of stages as part of the approval process</strong> - approx. 2-3 year lead up prior to production. Have to hit main committee for BoS approval &amp; followed by Deanery; QAC &amp; Edu Committee</td>
</tr>
<tr>
<td>34.</td>
<td><strong>Current (logistic) process:</strong> [47 steps]</td>
</tr>
<tr>
<td>35.</td>
<td>Multiple objectives / targets/metric</td>
</tr>
<tr>
<td>36.</td>
<td><strong>Lack of direction</strong> or clearly stated mission statement?? / vision (more than 'Digital By Design')</td>
</tr>
<tr>
<td>37.</td>
<td><strong>Lack of clarity</strong> RE constraints</td>
</tr>
<tr>
<td>38.</td>
<td><strong>Multiple systems</strong> (not just computer generated)</td>
</tr>
<tr>
<td>39.</td>
<td><strong>Production time too short</strong></td>
</tr>
<tr>
<td>40.</td>
<td><strong>Messy outdated systems</strong></td>
</tr>
<tr>
<td>41.</td>
<td>Some <strong>resistance to male/sports metaphors &amp; language underpinning Agile</strong></td>
</tr>
<tr>
<td>42.</td>
<td><strong>Outdated systems:</strong> Tracker / Documentum. Slow and difficult to find items at times. These hinder production and in terms of Tracker, it is just a tick box process but the only way to track handovers. Does not take into account quality</td>
</tr>
<tr>
<td>43.</td>
<td><strong>Lack of broadly agreed understanding of what Agile means</strong> in module production context</td>
</tr>
<tr>
<td>44.</td>
<td>Gratuitous remaking of modules</td>
</tr>
<tr>
<td>45.</td>
<td>Too many acronyms!</td>
</tr>
<tr>
<td>46.</td>
<td>Goalposts moving</td>
</tr>
<tr>
<td>47.</td>
<td>Forget/not recognise <strong>existing L&amp;T model</strong> [S.O.L]</td>
</tr>
<tr>
<td>48.</td>
<td>We reinvent the wheel too often - we need to repeat + scale</td>
</tr>
<tr>
<td>49.</td>
<td>Don't share good practice</td>
</tr>
<tr>
<td>50.</td>
<td><strong>Lack of specialist team members</strong></td>
</tr>
<tr>
<td>51.</td>
<td>Silos - restructuring - <strong>more silos</strong></td>
</tr>
<tr>
<td>52.</td>
<td><strong>Teams are too fragmented</strong></td>
</tr>
<tr>
<td>53.</td>
<td>Workshops - outcomes not visible or joined up</td>
</tr>
<tr>
<td>54.</td>
<td><strong>Time/space for creativity</strong></td>
</tr>
<tr>
<td>55.</td>
<td><strong>Slow decision making</strong></td>
</tr>
<tr>
<td>56.</td>
<td><strong>IUPC + academic workload planning don’t always correlate</strong></td>
</tr>
<tr>
<td>57.</td>
<td>Constraints + constraints being added in</td>
</tr>
<tr>
<td>58.</td>
<td>Structure of LTI!</td>
</tr>
<tr>
<td>59.</td>
<td><strong>Lots of talk about Agile but little action</strong></td>
</tr>
<tr>
<td>60.</td>
<td><strong>Lack of critical attitudes regarding the viability of Agile in an education context</strong></td>
</tr>
<tr>
<td>61.</td>
<td>No real collaboration - <strong>too much of a 'Them and Us' mentality</strong> between LTI + faculty</td>
</tr>
</tbody>
</table>
Table 37: Current people poster activity transcript

<table>
<thead>
<tr>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Good editor can double up as a SPM and project manage</td>
<td>Editor</td>
</tr>
<tr>
<td>2. Continuity of people with specialist skills</td>
<td>Skills</td>
</tr>
<tr>
<td>3. Collaborative, communicative module teams</td>
<td>Team</td>
</tr>
<tr>
<td>4. Good CMS</td>
<td>Skills</td>
</tr>
<tr>
<td>5. Roles/Responsibility need to be clear. Otherwise it can be chaotic</td>
<td>Team</td>
</tr>
<tr>
<td>6. Culture of enthusiasm plus goodwill within project teams</td>
<td>Team</td>
</tr>
<tr>
<td>7. Student input/voice: testing; feedback</td>
<td>Skills</td>
</tr>
<tr>
<td>8. Talking/conversation: bringing to life; social/affordance</td>
<td>Skills</td>
</tr>
<tr>
<td>9. F2F/Proximate; emotional/social connection; space to talk; serendipity</td>
<td>Team</td>
</tr>
<tr>
<td>10. Mental (in-depth knowledge); communicating this</td>
<td>Knowledge</td>
</tr>
<tr>
<td>11. Value of a good subject/knowledge editor</td>
<td>Editor</td>
</tr>
<tr>
<td>12. Audio feedback (example of practice)</td>
<td>Skills</td>
</tr>
<tr>
<td>13. Strong leadership skills by Module Team Chair - this is key</td>
<td>Skills</td>
</tr>
<tr>
<td>14. Broader module teams (AL's; students; ST's)</td>
<td>Team</td>
</tr>
<tr>
<td>15. Maintaining same editor through production = important</td>
<td>Editor; Knowledge</td>
</tr>
<tr>
<td>16. Good structure and stability helps with building strong relationships</td>
<td>Team; Skills</td>
</tr>
<tr>
<td>17. Clear escalation channels to raise issues (CM can go through Deanery to raise LTI issues)</td>
<td>Team</td>
</tr>
<tr>
<td>18. Good graphical artists + IMDs etc.</td>
<td>Skills</td>
</tr>
</tbody>
</table>

Table 38: Current process poster activity transcript

<table>
<thead>
<tr>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Effective team - with understanding and respect of each other’s roles and expertise</td>
<td>Understanding</td>
</tr>
<tr>
<td>2. Clarity and shared understanding of the process</td>
<td>Understanding</td>
</tr>
<tr>
<td>3. Light-touch Learning Design to gain common understanding of the purpose/audience and what and how it will be produced</td>
<td>Understanding</td>
</tr>
<tr>
<td>4. Allowing enough time for upfront planning/collaboration makes actual production smoother as little change is needed</td>
<td>Time</td>
</tr>
<tr>
<td>5. Time between D2 and D3 needs to allow for consideration and implementation</td>
<td>Time</td>
</tr>
<tr>
<td>6. Good drafting process, with time for reviewing and rewriting</td>
<td>Time</td>
</tr>
<tr>
<td>7. Having the right experts to advise at the right time really smooths the process i.e. Library, S&amp;V</td>
<td>Time</td>
</tr>
<tr>
<td>8. Process as attitude - &quot;People are process&quot;</td>
<td>Process</td>
</tr>
<tr>
<td>9. Leadership</td>
<td></td>
</tr>
<tr>
<td>10. Vision</td>
<td></td>
</tr>
<tr>
<td>11. Iteration of ideas and planning (within)</td>
<td>Iteration</td>
</tr>
<tr>
<td>12.</td>
<td>QA process = good: critical reader, LTI checks etc.</td>
</tr>
<tr>
<td>13.</td>
<td>Process as value-led, not behavioural</td>
</tr>
<tr>
<td>14.</td>
<td>Start-up meetings work well - identify roles and responsibilities</td>
</tr>
<tr>
<td>15.</td>
<td>Student developmental testing = good</td>
</tr>
<tr>
<td>16.</td>
<td>Being able to preview work as it is being written e.g. OpenCreate</td>
</tr>
<tr>
<td>17.</td>
<td>Involvement of Library and careers at an early stage. Also students</td>
</tr>
</tbody>
</table>

Table 39: Current products poster activity transcript

<table>
<thead>
<tr>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ecology of docs, not dead ends</td>
<td></td>
</tr>
<tr>
<td>2. Planet - one stop repository of all the attributes of a module/or &quot;qual&quot; (the interface isn't great, but it is vital to have a one stop shop)</td>
<td>Organisation</td>
</tr>
<tr>
<td>3. To us &quot;products&quot; means what we deliver to students (the output)</td>
<td></td>
</tr>
<tr>
<td>4. What's listed here is the means to the end</td>
<td></td>
</tr>
<tr>
<td>5. LTI production specification helps project manager plan resources and scope creep</td>
<td>Documentation</td>
</tr>
<tr>
<td>6. LTI/editorial draft cover sheet is working well to feedback to authors of materials</td>
<td>Documentation</td>
</tr>
<tr>
<td>7. LTI production schedule as a project management tool helps monitor slippage mitigation</td>
<td>Documentation</td>
</tr>
<tr>
<td>8. Visual mock-ups (we don't do enough of this)</td>
<td>Design</td>
</tr>
<tr>
<td>9. …And design risks (TEL Design plan)</td>
<td>Design</td>
</tr>
<tr>
<td>10. Project manager risk log helps mitigate potential risks, needs to be joined with CAU version</td>
<td>Documentation</td>
</tr>
<tr>
<td>11. Intelligent folder structures/house keeping</td>
<td>Organisation</td>
</tr>
<tr>
<td>12. Syllabus</td>
<td>Module component</td>
</tr>
<tr>
<td>13. Module workspaces</td>
<td>Organisation</td>
</tr>
<tr>
<td>14. Unit 0s</td>
<td>Module component</td>
</tr>
<tr>
<td>15. Opportunity review</td>
<td></td>
</tr>
<tr>
<td>16. Learning outcomes</td>
<td>Module component</td>
</tr>
<tr>
<td>17. REP03 especially study planner element</td>
<td>Documentation</td>
</tr>
</tbody>
</table>

Table 40: Current practices poster activity transcript

<table>
<thead>
<tr>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Learning design - Authors are thinking differently (data analytics)</td>
<td>Design</td>
</tr>
<tr>
<td>2. We're getting better at thinking about quals not modules</td>
<td>Design; Qualification</td>
</tr>
<tr>
<td>3. Culture - People care and are enthusiastic so go the extra</td>
<td></td>
</tr>
</tbody>
</table>
mile. We do put students first!

4. Good relationships - makes a project go better

5. Local level - **good collaboration** (between individuals) Collaboration

6. Willingness to try new things (even if it's not possible)

7. Having a **project manager to steer media developer staff helps smooth the production** and keeps it on track when scope or schedule change Project Management

8. **Designing qualification** rather than individual modules helps students experience Design; Qualification

9. **Collaboration between module teams and LTI improves the module materials** for the student. Need time for this to happen Collaboration

10. **Critical reading of teaching material** whilst it's in development - very important Review

11. **Qualitative data from students** (and ALs) as well as quantitative data Data

12. **Use of data analytics to gain a better understanding of student behaviour** - work in progress! Data

13. Vacuum of iteration between modules

14. **T192/3/4 - Qual** (but it breaks down without continuity…) Qualification

15. **Learning Design** - as a process; facilitation Design

16. **Good project management** - longer-term planning and goal setting gets things done Project Management

17. **Quick catch ups** work well with module team - 10-15 mins every week Collaboration

18. Evidence-based approaches: e.g. longitudinal studies; at curriculum level; ignoring other research

19. **Budget management has improved** - more awareness - but can stifle creativity Project Management

Table 41: Future people poster activity transcript

<table>
<thead>
<tr>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Transparency of workloads</td>
<td>Roles</td>
</tr>
<tr>
<td>2. More flexibility in roles and less emphasis on job descriptions</td>
<td>Roles</td>
</tr>
<tr>
<td>3. Qualitative data from across all parts of the OU (student feedback etc.) is collated and accessible by all</td>
<td>Roles</td>
</tr>
<tr>
<td>4. All wearing space suits and come to work in flying cars</td>
<td>Commitment</td>
</tr>
<tr>
<td>5. Academics in regular contact and available</td>
<td>Collaboration</td>
</tr>
<tr>
<td>6. Everyone buys into the collaborative culture and respects what others contribute</td>
<td>Collaboration</td>
</tr>
<tr>
<td>7. AL/staff and tutors to be part of a production team</td>
<td>Roles</td>
</tr>
<tr>
<td>8. Have a staff room: <strong>how to share scholarship/anecdotal info</strong>; with AL's/STs</td>
<td>Collaboration</td>
</tr>
<tr>
<td>9. Crossover of roles and responsibilities</td>
<td>Roles</td>
</tr>
<tr>
<td>10. Collaborative teams</td>
<td>Collaboration</td>
</tr>
<tr>
<td>11. Being able to <strong>bring in AL's/externals when needed</strong> (currently budget constraints)</td>
<td>Roles</td>
</tr>
<tr>
<td>No.</td>
<td>Individual contribution</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Recruitment based on - potential; attitude; &quot;soft&quot; skills; alternative to interview</td>
</tr>
<tr>
<td>13</td>
<td>Those employed as academics to teach all being interested in and committed to teaching, learning and understanding students (whether or not they do research as well)</td>
</tr>
<tr>
<td>14</td>
<td>Media specialists need to be subject specialists so they can hit the ground running; saves time - keeps things moving</td>
</tr>
<tr>
<td>15</td>
<td>Students as part of the paid workforce</td>
</tr>
<tr>
<td>16</td>
<td>Provide more &quot;hot desking&quot; for teams to work together</td>
</tr>
<tr>
<td>17</td>
<td>Responsive staffing</td>
</tr>
<tr>
<td>18</td>
<td>To think in terms of a &quot;team&quot; not faculty + LTI therefore 1 project manager</td>
</tr>
</tbody>
</table>

Table 42: Future process poster activity transcript

<table>
<thead>
<tr>
<th>No.</th>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Working in close proximity of key people you need to work with</td>
<td>Collaboration</td>
</tr>
<tr>
<td>2.</td>
<td>Quicker approval process - at present, five points of approval… bottlenecks + less burdensome</td>
<td>Time</td>
</tr>
<tr>
<td>3.</td>
<td>Less &quot;pass the parcel&quot; and more build a product (or elements of) together</td>
<td>Collaboration</td>
</tr>
<tr>
<td>4.</td>
<td>People live in healthy fear of collaboration</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Silos are gone: allowing teams to engage in collaboration</td>
<td>Collaboration</td>
</tr>
<tr>
<td>6.</td>
<td>Individual silos… job description</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>People have &quot;space&quot; to work (not time, not resource - space)</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>More collaborative with cross-functional collaboration rather than handovers</td>
<td>Collaboration</td>
</tr>
<tr>
<td>9.</td>
<td>Streamlined with fewer hurdles and hoops</td>
<td>Time</td>
</tr>
<tr>
<td>10.</td>
<td>Transparent and sensible with clear accountabilities</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Process + silos + accountability + trust + … It all depends on how the money and resources [flow] from where it is held. That needs sorting out!</td>
<td>Dependency</td>
</tr>
<tr>
<td>12.</td>
<td>People empowered to make their own decisions without entering into an extended process</td>
<td>Empowerment</td>
</tr>
<tr>
<td>13.</td>
<td>Fuller team formed early in the process and involved throughout</td>
<td>Time</td>
</tr>
<tr>
<td>14.</td>
<td>Curriculum is designed and designed to be responsive/adaptive</td>
<td>Design</td>
</tr>
<tr>
<td>15.</td>
<td>The University recognises that a lot of these things are dependent on the context and the subject</td>
<td>Dependency</td>
</tr>
</tbody>
</table>

Table 43: Future products poster activity transcript

<table>
<thead>
<tr>
<th>No.</th>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Improved reporting mechanism (i.e. smarter analytics) to alert if problem on a module e.g. large drop in TMA submission</td>
<td>Reporting</td>
</tr>
<tr>
<td>2.</td>
<td>Spring clean all the dead documentation has been thrown</td>
<td>Documentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>Responsive documentation</strong></td>
<td>Documentation</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Live documentation</strong> not just done at a point and then forgotten</td>
<td>Documentation</td>
</tr>
<tr>
<td>5.</td>
<td>Our courses are designed not to rely purely on &quot;online&quot; - by 2023 - cyber wars? Pushback against tech?</td>
<td>Design</td>
</tr>
<tr>
<td>6.</td>
<td>A strong community</td>
<td>Community</td>
</tr>
<tr>
<td>7.</td>
<td><strong>Less but enough</strong> - up to date</td>
<td>Quantity</td>
</tr>
<tr>
<td>8.</td>
<td><strong>Mobile learning</strong> - gaps in knowledge are beginning to be filled - understanding this as a &quot;mode&quot;</td>
<td>Design</td>
</tr>
<tr>
<td>9.</td>
<td><strong>No duplication of information</strong> in different places and formats</td>
<td>Duplication</td>
</tr>
<tr>
<td>10.</td>
<td><strong>Short and concise and communicated at the point of need</strong></td>
<td>Quantity</td>
</tr>
<tr>
<td>11.</td>
<td>Smartphone learning - <strong>make best use of different platforms</strong></td>
<td>Design</td>
</tr>
<tr>
<td>12.</td>
<td>A proper <strong>searchable archive</strong> of reusable or modifiable assets</td>
<td>Reuse</td>
</tr>
<tr>
<td>13.</td>
<td>Platform adaption in a box - on and offline - <strong>responsive Learning Design</strong></td>
<td>Design</td>
</tr>
<tr>
<td>14.</td>
<td>Small changes and integration to modules/curriculum</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td><strong>Integration of data to avoid duplication</strong> of preparing approval documentation</td>
<td>Integration</td>
</tr>
<tr>
<td>16.</td>
<td><strong>Integrated systems</strong></td>
<td>Integration</td>
</tr>
<tr>
<td>17.</td>
<td><strong>Netflix model</strong> - chunks of learning</td>
<td>Design</td>
</tr>
</tbody>
</table>

Table 44: Future practices poster activity transcript

<table>
<thead>
<tr>
<th>Individual contribution</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assessment; tuition; feedback (is <strong>taken seriously as part of Learning Design</strong>)</td>
<td>Design</td>
</tr>
<tr>
<td>2. A <strong>good specialism mix. everyone values the role of other team members</strong></td>
<td>Roles</td>
</tr>
<tr>
<td>3. <strong>Close teams pulling together</strong></td>
<td>Collaboration</td>
</tr>
<tr>
<td>4. Module teams understanding <strong>production process</strong>, better to speed it up and to make the right decisions</td>
<td>Understanding</td>
</tr>
<tr>
<td>5. <strong>Clear roles/responsibilities</strong> editors, authors, CMs</td>
<td>Roles</td>
</tr>
<tr>
<td>6. Better/fewer systems - <strong>one version of the truth</strong></td>
<td>Duplication</td>
</tr>
<tr>
<td>7. <strong>Creativity</strong> (space for) and <strong>discussion to make better things</strong></td>
<td>Improvement</td>
</tr>
<tr>
<td>8. <strong>Designing modules is sometimes fun!</strong></td>
<td>Design</td>
</tr>
<tr>
<td>9. Modules are designed from outset to be used in different contexts - including offline</td>
<td>Design</td>
</tr>
<tr>
<td>10. <strong>Student involvement in design</strong></td>
<td>Student involvement</td>
</tr>
<tr>
<td>11. Needs to be captured systematically</td>
<td></td>
</tr>
<tr>
<td>12. Responsive VLE developments/better product</td>
<td></td>
</tr>
<tr>
<td>13. Better morale</td>
<td></td>
</tr>
<tr>
<td>14. The OU leading the market</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>15</td>
<td>Sensible scaffolding/integration of digital literacy/general skills</td>
</tr>
<tr>
<td>16</td>
<td>Introduce &quot;critical friend&quot; process to continually challenge team through productions</td>
</tr>
<tr>
<td>17</td>
<td>Shared understanding of how students want to study - based on data not anecdote</td>
</tr>
<tr>
<td>18</td>
<td>Building on lessons learned… (systematically captured) evidence-based practice</td>
</tr>
<tr>
<td>19</td>
<td>One system that works! Central repository for module/qual info</td>
</tr>
<tr>
<td>20</td>
<td>Within general coherence, there is room for the needs and particularities of individual subjects</td>
</tr>
<tr>
<td>21</td>
<td>Student workload is consistent each week - no variations i.e. 12 hours each week not 16 one week, then 12 next</td>
</tr>
<tr>
<td>22</td>
<td>Authors understanding how to teach and write in an online world</td>
</tr>
<tr>
<td>23</td>
<td>Redundant people and barriers gone</td>
</tr>
<tr>
<td>24</td>
<td>Co-location to improve collaboration</td>
</tr>
<tr>
<td>25</td>
<td>Test bed for new curriculum ideas</td>
</tr>
<tr>
<td>26</td>
<td>Mentorship/apprenticeship - into college of practice</td>
</tr>
<tr>
<td>27</td>
<td>Having a way of outputting clear &quot;actions&quot; rather than creating lengthy minutes</td>
</tr>
<tr>
<td>28</td>
<td>Take account of student feedback</td>
</tr>
<tr>
<td>29</td>
<td>Allow time to see what works. If materials are constantly changing, it's possible that we'll throw the baby out with the bath water - think A4A…</td>
</tr>
</tbody>
</table>

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**Online focus group data**

Table 45: Current process for producing online learning content

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example comment(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>‘We have a CM [Curriculum Manager] and CAs [Course Assistants] who support the modules within the [team name removed] and are happy to have had a stable CM who is experienced at the OU but also open to trying new ways of working. We also have had a pretty much stable production team’ [Focus1]</td>
</tr>
<tr>
<td></td>
<td>‘Each team usually has a chair, a curriculum manager, a senior project manager and a senior learning designer’ [Focus7]</td>
</tr>
<tr>
<td></td>
<td>‘…the writing and creative work starts in the faculty with the involvement and advice from TEL designers.’ [Focus4]</td>
</tr>
<tr>
<td>Process</td>
<td>‘Ultimately very waterfall, which might be okay or necessary for print production, but it can be sub-optimal for rapid creation of digital content and activities’ [Focus5]</td>
</tr>
<tr>
<td></td>
<td>‘For the second module we are going to use Kanban to supplement this authoring process and manage the tasks more explicitly and transparently for the whole team’ [Focus1]</td>
</tr>
<tr>
<td></td>
<td>‘Module team comes together, goes off to write sections of module content on their own, comes back together to review content, feedback given, iterative process, one member takes responsibility for interactive/audio-visual content, editor becomes involved at some point in the process, LTI involved thru process also and at different times’ [Focus3]</td>
</tr>
<tr>
<td>Practice</td>
<td>‘We therefore started exploring agile forms of working, which we are now reflecting on and developing for use on our second module’ [Focus1]</td>
</tr>
<tr>
<td></td>
<td>‘…meet regularly, use email, Trello and OneDrive, have wider meetings with the wider team e.g. media developer, V&amp;A [video and audio] support’ [Focus2]</td>
</tr>
<tr>
<td>Product</td>
<td>‘Detailed specifications produced well in advance of production … Generally use critical path project plan, which tends to push issues down the line rather than surface challenges early on’ [Focus5]</td>
</tr>
</tbody>
</table>
Table 46: Issues faced with the production of online learning content

<table>
<thead>
<tr>
<th>Category</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td></td>
</tr>
<tr>
<td>• Identity</td>
<td>‘Lack of coherent team identity’ [Focus6]</td>
</tr>
<tr>
<td>• Relationships</td>
<td>‘When I am involved in a number of module productions, I am not able to develop deeper - involved relationships with the team, to understand the needs of other in the team and how I might be able to assist’ [Focus4]</td>
</tr>
<tr>
<td>Process</td>
<td></td>
</tr>
<tr>
<td>• Budget</td>
<td>‘Annual budget process can create a 'lock down' in design process’ [Focus6]</td>
</tr>
<tr>
<td>• Text-based</td>
<td>‘Process to slow and non-responsive to changes outside the agreed / budgeted design spec’ [Focus6]</td>
</tr>
<tr>
<td></td>
<td>‘…text-based production processes inhibit agile working’ [Focus6]</td>
</tr>
<tr>
<td>Practice</td>
<td></td>
</tr>
<tr>
<td>• Tools</td>
<td>‘Tools used for sharing among the teams: so many of them and different teams prefer different tools’ [Focus7]</td>
</tr>
<tr>
<td>• Collaboration</td>
<td>‘We still can't direct author and so collaborative writing once handed over and moved onto the VLE is very clunky and inefficient’ [Focus1]</td>
</tr>
<tr>
<td>Product</td>
<td></td>
</tr>
<tr>
<td>• Specification</td>
<td>‘LTI always delivers in line with the specification, but timely handovers from faculties would eliminate extra stress’ [Focus4]</td>
</tr>
<tr>
<td>• Handover</td>
<td></td>
</tr>
</tbody>
</table>

Table 47: What is valued in the production of online learning content

<table>
<thead>
<tr>
<th>Category</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td></td>
</tr>
<tr>
<td>• Editor</td>
<td>‘Editors have a good, diplomatic way of giving constructive feedback and advice to course teams, representing the views of potential students to ensure high quality, relevant material’ [Focus1]</td>
</tr>
<tr>
<td>• Team</td>
<td>‘…expertise of individual media specialists is valued’ [Focus5]</td>
</tr>
<tr>
<td>• Tutor</td>
<td>‘Usually a strong bond in the production team…’ [Focus5]</td>
</tr>
<tr>
<td></td>
<td>‘That many different people from different teams get together’ [Focus7]</td>
</tr>
<tr>
<td></td>
<td>‘Recruitment of interested and experienced tutors to offer the hands-on tutorial support…’ [Focus1]</td>
</tr>
<tr>
<td>Process</td>
<td>‘Current processes work well in general, however the OU would</td>
</tr>
</tbody>
</table>
- Simplicity: benefit from streamlining procedures, eliminating unnecessary steps, making it simpler to work’ [Focus4]

Practice
- Decision making: ‘Accessibility as an ever-present agenda item is important and a key offer of the OUs and has informed our decision-making’ [Focus1]
- Learning Design: ‘Learning Design workshop is v. helpful to get everyone thinking about all aspects’ [Focus2]

Product
- Tool: ‘Support for tool use in decision-making…’ [Focus1]

Table 48: Effectiveness of the Reflection Aide for identifying Agile principles in practice

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater extent</td>
<td>‘Most of the criteria apply well. Some might not be very straightforward to use at the OU as are more geared towards the development of IT products…’ [Focus4]</td>
</tr>
<tr>
<td></td>
<td>‘I think these principles are useful with some adaptation. The language might be reviewed to ensure their wide applicability e.g. who does ‘our’ refer to and who is the customer?’ [Focus1]</td>
</tr>
<tr>
<td></td>
<td>‘Pretty good! To me, retrospectives are one of the most important and beneficial aspects of Agile, and i don't think this comes out clearly enough’ [Focus5]</td>
</tr>
<tr>
<td></td>
<td>‘Very clear and helpful framework for assessment’ [Focus6]</td>
</tr>
<tr>
<td>Neutral</td>
<td>‘A bit clunky, but fairly clear on breakdowns of activities’ [Focus8]</td>
</tr>
<tr>
<td>Lesser extent</td>
<td>[No relevant comments]</td>
</tr>
</tbody>
</table>

Table 49: Which criteria within the Reflection Aide require the most stretch

<table>
<thead>
<tr>
<th>Agile principle</th>
<th>Example comment(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous delivery</td>
<td>‘current work feels very bureaucratic with long forms to complete and permissions to be sought for minor changes’ [Focus3]</td>
</tr>
<tr>
<td></td>
<td>‘data and evidence’ to inform development and continuous improvement’ [Focus5]</td>
</tr>
<tr>
<td>Embracing change</td>
<td>‘there is a limit/ deadline by which the change can still be implemented e.g. by the student use date’ [Focus4]</td>
</tr>
</tbody>
</table>

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‘Welcome changing requirements’ - this will probably be the most significant change. Not clear to me how to effectively resource this at production scale across a matrix of specialists, presumably working simultaneously on multiple products and projects’ [Focus5]

**Iterative development**

‘There is still too early lock down on early content which needs to be updated to reflect the rest of the module’s developments’ [Focus1]

**Staff collaboration**

‘Business people and developers must work together’ - some academics may argue that they are neither of these roles’ [Focus5]

‘is unrealistic as many employers [sic] do not work full week at OU’ [Focus8]

**Motivated teams**

‘team members who don't contribute or make a limited contribution’ [Focus2]

‘I would go further an[d] state that effective Agile teams should be self-contained and self-directing’ [Focus5]

**Face-to-face communication**

**Measuring progress**

**Sustainable working practice**

‘changes to the team through the process’ [Focus2]

**Skills and design**

**Simplicity**

‘our current governance process’ [Focus2]

‘current work feels very bureaucratic with long forms to complete and permissions to be sought for minor changes’ [Focus3]

**Self-organisation**

‘assumption that most specialists will need to work in more than one agile team at any one time, which creates additional problems for agile’ [Focus5]

**Reflection and learning**

<table>
<thead>
<tr>
<th>Usefulness</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very useful</td>
<td>‘Very good, I recognised my experience of being involved in a module production team from the first example and that the second and third took us through better examples of practice leading to</td>
</tr>
</tbody>
</table>

Table 50: Evaluating the usefulness of the Dashboard Assessment Tool
example three as one of good practice and importantly – TRUST’  [Focus3Focus3]

Useful
‘We have found we need phases of walking (at least some aspects still stand), running and sprinting to be sustainable. I do think these are helpful, if can be adapted into becoming part of a team’s language when they might not want to stick with this exact analogy.’ [Focus1]

‘Nice and simple. I don't completely see the benefit in making a distinction in scoring agility/responsiveness separately from collab. Super simple would be to just have a single RAG status for each principle, then the narrative or actions can highlight the weak areas that need focus.’ [Focus5]

‘It looks pretty and I liked the RAG indicator’ [Focus6]

‘A useful bouncing board for starting up teams’ [Focus8]

Neutral [No relevant comments]

Not useful [No relevant comments]

Table 51: Effectiveness of the Tool for supporting the implementation of the Agile principles

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very effective</td>
<td>‘I think it could be very effective as a framework for support but will require more specific guidance to be effective at an individual and group level’ [Focus6]</td>
</tr>
<tr>
<td></td>
<td>‘I think it has the potential to be very effective, especially if any guidance is supported by a person or people who have some experience and can share case studies’ [Focus7]</td>
</tr>
<tr>
<td>Effective</td>
<td>‘It can be effective provided everyone understands the practicalities behind the agile principles’ [Focus4]</td>
</tr>
<tr>
<td></td>
<td>‘Quite effective, but shouldn’t be the only tool - perhaps go hand-in-hand with exemplars and success stories’ [Focus5]</td>
</tr>
<tr>
<td>Neutral</td>
<td>‘this is difficult to answer because it isn’t dependent on the quality of the tool as much as the buy in from the team/s’ [Focus2]</td>
</tr>
<tr>
<td>Not effective</td>
<td>‘It feels a bit like a sales pitch rather than a guide’ [Focus8]</td>
</tr>
</tbody>
</table>
### Table 52: Suggestions for types of guidance for implementing change

<table>
<thead>
<tr>
<th>Category</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>‘how you get everyone to commit to work in a similar way’ [Focus2]</td>
</tr>
<tr>
<td></td>
<td>‘I think that it is a cultural and organisation change [that] is needed first where we trust people to do the jobs they have been employed to be and free them [from] the bureaucracy we have created’ [Focus3]</td>
</tr>
<tr>
<td>Practice</td>
<td>‘Some examples of how things have been put into practice’ [Focus1]</td>
</tr>
<tr>
<td></td>
<td>‘Focus groups, mentoring’ [Focus4]</td>
</tr>
<tr>
<td></td>
<td>‘Exemplars and positive stories showing practical benefits’ [Focus5]</td>
</tr>
</tbody>
</table>

### Table 53: Extent to which the narrative descriptions offer a reasonable explanation of practice

<table>
<thead>
<tr>
<th>Reasonability</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater extent</td>
<td>‘yes they are reasonable’ [Focus2]</td>
</tr>
<tr>
<td></td>
<td>‘very helpful, I like that the key words have been highlighted’ [Focus4]</td>
</tr>
<tr>
<td></td>
<td>‘Very strong, clear narrative here. Breaking into three transitional phases - walking, running, sprinting - is a nice metaphor, as are the subtle aligning/adopting/adapting references - could make more of these’ [Focus5]</td>
</tr>
<tr>
<td></td>
<td>‘The narrative descriptions are very useful’ [Focus6]</td>
</tr>
<tr>
<td></td>
<td>‘Pretty good if it all pans out’ [Focus8]</td>
</tr>
<tr>
<td>Neutral</td>
<td>[No comments]</td>
</tr>
<tr>
<td>Lesser extent</td>
<td>‘The imagery and layout is nice but confusing. I would also like to see means of assessing/evidencing the statements in the narrative description’ [Focus6]</td>
</tr>
<tr>
<td></td>
<td>‘They are too general, I would like more detail’ [Focus7]</td>
</tr>
<tr>
<td></td>
<td>‘Bit of a complicated health check though’ [Focus8]</td>
</tr>
</tbody>
</table>
Table 54: Usefulness of the narrative descriptions for supporting discussion and decision making

<table>
<thead>
<tr>
<th>Usefulness</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very useful</td>
<td>‘Very’ [Focus2]</td>
</tr>
<tr>
<td></td>
<td>‘Very useful - give the realistic impression that it’s okay to try and not be an expert straight away, and slowly move in the right direction. Interesting that even when sprinting, it's not all green indicators - very real world approach to a model. Agile is about continuous learning and improvement, and there is always something new to try’ [Focus5]</td>
</tr>
<tr>
<td>Useful</td>
<td>‘Good for supporting discussion around agile, changing culture and embedding change will take more than a narrative description though’ [Focus3Focus3]</td>
</tr>
<tr>
<td></td>
<td>‘They could start discussions and encourage exchange of views/ experiences’ [Focus7]</td>
</tr>
<tr>
<td>Neutral</td>
<td>‘Questions would be useful to accompany the scenarios’ [Focus1]</td>
</tr>
<tr>
<td></td>
<td>‘The[y] are a starting point’ [Focus6]</td>
</tr>
<tr>
<td></td>
<td>‘This is software focussed, of course agile is now used in other production circles’ [Focus8]</td>
</tr>
<tr>
<td>Not useful</td>
<td>[No comments]</td>
</tr>
</tbody>
</table>

Table 55: Ranking Agile principles in order of importance for increasing agility

<table>
<thead>
<tr>
<th>Principle</th>
<th>Highly important</th>
<th>Important</th>
<th>Neither nor unimportant</th>
<th>Unimportant</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous delivery</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Embracing change</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Iterative development</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Staff collaboration</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Motivated teams</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Face-to-face communication</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Measuring progress</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Principle</td>
<td>Highly important</td>
<td>Important</td>
<td>Neither nor unimportant</td>
<td>Unimportant</td>
<td>Don’t know</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------</td>
<td>-----------</td>
<td>-------------------------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Sustainable working practice</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Skills and design</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Simplicity</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Self-organisation</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reflection and learning</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 56: Ranking Agile principles in order of importance for increasing collaboration
Table 57: Ranking Agile principles in order of priority for driving change

<table>
<thead>
<tr>
<th>Principle</th>
<th>High priority (we must do this)</th>
<th>Medium priority (we should do this)</th>
<th>Low priority (we could do this)</th>
<th>Not a priority</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous delivery</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Embracing change</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Iterative development</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Staff collaboration</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motivated teams</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Face-to-face communication</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Measuring progress</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sustainable working practice</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Skills and design</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Simplicity</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Self-organisation</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reflection and learning</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 58: Barriers to implementing Agile principles in practice

<table>
<thead>
<tr>
<th>Category</th>
<th>Example comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>‘Disparate, large teams’ [Focus1]</td>
</tr>
<tr>
<td>• Teams</td>
<td>‘Lack of trust’ [Focus2]</td>
</tr>
<tr>
<td>• Culture</td>
<td>‘… required change of culture’ [Focus3]</td>
</tr>
<tr>
<td>• Agile exhaustion</td>
<td>‘Cultural and historical baggage’ [Focus5]</td>
</tr>
<tr>
<td></td>
<td>‘Agile exhaustion - the university has been talking about applying agile to everything for a few years now, like some magical panacea. This has probably done some damage to the expectations and image of agile. Should aim to reboot expectations - agile works in some situations, but will not solve world hunger’ [Focus5]</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Process</th>
<th>‘Competition’ [Focus6]</th>
</tr>
</thead>
<tbody>
<tr>
<td>•  Competition</td>
<td>‘Competing processes on different timescales’ [Focus1]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practice</th>
<th>‘Time’ [Focus8]</th>
</tr>
</thead>
<tbody>
<tr>
<td>•  Time</td>
<td>‘Working times do not allow for daily meetings, face to face meetings’ [Focus8]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>‘Systems’ [Focus1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>•  Systems</td>
<td>‘Incompatible software systems’ [Focus1]</td>
</tr>
</tbody>
</table>
Appendix 14: Redeveloped Agile toolkit (Version 3)

The Agile Toolkit

- Reflection Aide
- Dashboard Assessment Tool
- Scenarios illustrating Agile principles in practice and a maturity of Agile practice over time
### REFLECTION AIDE

Use this to uncover evidence of the Agile principles in practice as well as identify areas to improve agility.

<table>
<thead>
<tr>
<th>Adapted Agile principle</th>
<th>In practice this means we are...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Our highest priority is to satisfy the learner through early and continuous delivery of valuable online learning content.</td>
<td>- Aware of what students need and how the new curriculum fits with the strategic priorities - Publishing content at regular intervals and not at the end of the production - Using available data and insights to inform ongoing development.</td>
</tr>
<tr>
<td>2. Welcome changing requirements, even late in development. Agile processes harness change for the institution’s competitive advantage.</td>
<td>- Resourced according to demands - Creating and following a flexible plan - Updating live content where possible.</td>
</tr>
<tr>
<td>3. Deliver online learning content from a couple of weeks to a couple of months, with a preference for the shorter timescale.</td>
<td>- Breaking down tasks into deliverable chunks - Working in clearly defined sprints or cycles of activity - Aiming at “good enough” through the use of effective prioritisation and the concept of a Minimum Viable Product (MVP).</td>
</tr>
<tr>
<td>4. Academic and specialist staff must work together regularly and frequently throughout the production of online learning content.</td>
<td>- Working with cross-functional specialists, co-locating together where possible - Running workshops with key stakeholders - Using appropriate tools to support and encourage collaboration - Respecting each other’s skills and experience.</td>
</tr>
<tr>
<td>5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.</td>
<td>- Able to take decisions on safety that we believe - Free to think differently and contribute their ideas - Supported by management as and when needed.</td>
</tr>
<tr>
<td>6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.</td>
<td>- Creating regular opportunities to meet face-to-face (i.e. daily stand up) - Using appropriate tools to support effective communication - Able to see who is doing what and when through a visual work pipeline (i.e. a Kanban board).</td>
</tr>
<tr>
<td>7. Working online learning content is the primary measure of progress.</td>
<td>- Creating prototypes - Testing content - Building feedback into the next iteration.</td>
</tr>
<tr>
<td>8. Agile processes promote sustainable development.</td>
<td>- Regularly reviewing the plan to ensure it remains achievable - Using the right staff with the right skills at the right time - Protecting the availability and capacity of key skills (e.g. an actor).</td>
</tr>
<tr>
<td>10. Simplicity—the art of maximizing the amount of work not done—is essential.</td>
<td>- Prioritising all tasks (e.g. using MoSCoW) - Continuously looking for opportunities to minimize impact with minimal effort.</td>
</tr>
<tr>
<td>11. The best learning designs emerge from self-organizing teams in a flexible structure.</td>
<td>- Clear on each other’s roles, responsibilities, capabilities and capacity - Encouraged and supported to work together proactively and without being directed - Building and maintaining a one-team culture.</td>
</tr>
<tr>
<td>12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.</td>
<td>- Providing space to reflect on and improve the process throughout production, not just at the end - Adapting our practices and behaviours following reflection - Embedding lessons learned into the next production initiative.</td>
</tr>
</tbody>
</table>

*Agile principles adapted from [http://agilemanifesto.org/principles.html](http://agilemanifesto.org/principles.html)*

**Legend:**
- **High:** Strong evidence that all of the criteria are being met and continuously and according to context.
- **Medium:** Some evidence as some of the criteria are being met.
- **Low:** Limited evidence that any of the criteria are being met.
# DASHBOARD TOOL

Use this to capture outputs from the Reflection Aide

<table>
<thead>
<tr>
<th>Agile principles evidenced in practice</th>
<th>Implementation guidance</th>
</tr>
</thead>
</table>
| 1. Our highest priority is to satisfy the learner through early and continuous delivery of valuable online learning content. | In order to improve agility, it is recommended that practitioners and teams focus on implementing:  
   - Retention and learning (Principle 12)  
   - Embracing change (Principle 2)  
   - Staff collaboration (Principle 4)  
   - Motivated teams (Principle 5)  
   - Simplicity (Principle 16) |
| 2. Welcome changing requirements, even late in development. Agile processes harness change for the destination's competitive advantage. |  |
| 3. Delive online learning content, from a couple of weeks to a couple of months, with a preference to the shorter timescale. | In order to increase collaboration, it is recommended that practitioners and teams focus on implementing:  
   - Retention and learning (Principle 12)  
   - Staff collaboration (Principle 4)  
   - Motivated teams (Principle 5)  
   - Self-organisation (Principle 11)  
   - Embracing change (Principle 2) |
| 4. Academic and specialist staff must work together regularly and frequently throughout the production of online learning content. | |
| 5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done. | In order to drive change, it is recommended that practitioners and teams focus on implementing:  
   - Retention and learning (Principle 12)  
   - Continuous delivery (Principle 1) |
| 6. The most efficient and effective method of conveying information is and within a development team is face-to-face conversation. | |
| 7. Working online learning content is the primary measure of progress. | |
| 8. Agile processes promote sustainable development. The production team should be able to maintain a constant pace indefinitely. | Practitioners and teams may experience barriers to implementing Agile principles, for example:  
   - A lack of shared understanding of what is required or expected in the development of the content (Principle 1)  
   - Incompatible software systems or tools that are not fit for purpose (Principles 1, 2, 7).  
   - The prevalence of silo (Principle 4)  
   - A lack of trust and the ability to guarantee enthusiasm or commitment (Principle 5)  
   - A lack of time for frequent, regular and/or face-to-face communication (Principle 6)  
   - Competing processes running to different timescales (Principle 8).  
   - Disparate, large teams (Principle 11).  
   - The ability to learn and implement new ways of working (Principle 12).  
   - The culture and history of an organisation and/or team (All Principles).  
   - The ability to apply Agile to all situations (All Principles). |
| 9. Continuous attention to technical excellence and good learning design enhances agility. | |
| 10. Simplicity—the art of maximizing the amount of work not done—is essential. | |
| 11. The best learning designs emerge from self-organizing teams in a flexible structure | |
| 12. At regular intervals, the team reflects on how to become more effective, than tunes and adjusts its behavior accordingly | Where a barrier is surfaced, practice may have to adapt accordingly until the principle can be adopted fully. |
SCENARIO ONE: WALKING

A consistent and enthusiastic team is brought together to design and develop new online learning content. All roles and responsibilities are respected, agreed on, and made clear at a start-up meeting. A Project Manager works with a Faculty-based Chair to provide strong leadership and management, ensuring the team have a shared understanding of the process and how to escalate risks and issues. Some specialist roles, such as an Editor, are continuous throughout production. Additional expertise and knowledge is pulled in as and when required.

The team takes a light-touch approach to Learning Design in order to gain a common understanding of the purpose of the learning content, its prospective students, and how it will be produced. This is supplemented with data analytics to help understand student behaviour. Time is provided for some draft planning and scheduling (e.g., specification), to minimise the need for change. Time is also provided for the drafting process, with extra built-in for reviewing and rewriting—sometimes with visual mock-ups. The quality of learning content is assured through developmental testing with students, the Editor, and critical readers.

Some of the team communicate regularly through face-to-face meetings or through spontaneous conversations. Collaborative relationships are built over time due to the stable team structure. Documentation is shared centrally, either on a server or a shared online workspace.

This scenario emphasises the current process, product, practice and people aspects of the production of online learning content that colleagues value.

People care and are enthusiastic so go the extra mile!

Agile principles relevant in this scenario:

<table>
<thead>
<tr>
<th>Principle</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable, online learning content</td>
<td>High</td>
</tr>
<tr>
<td>2. Welcome changing requirements even late in development. Agile processes harness change for the customer's competitive advantage</td>
<td>Medium</td>
</tr>
<tr>
<td>3. Deliver online learning content from a couple of weeks to a couple of months, with a preference to the shorter timescales</td>
<td>Low</td>
</tr>
<tr>
<td>4. Amdex and digital staff work together regularly and frequently throughout the production of online learning content</td>
<td>Low</td>
</tr>
<tr>
<td>5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done</td>
<td>High</td>
</tr>
<tr>
<td>6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation</td>
<td>Medium</td>
</tr>
<tr>
<td>7. Working online learning content is the primary measure of progress</td>
<td>High</td>
</tr>
<tr>
<td>8. Agile processes promote sustainable development. The production team should be able to maintain a constant pace indefinitely</td>
<td>Medium</td>
</tr>
<tr>
<td>9. Continual attention to technical excellence and good design enhances agility</td>
<td>High</td>
</tr>
<tr>
<td>10. Simplicity—the art of maximizing the amount of work not done—is essential</td>
<td>Medium</td>
</tr>
<tr>
<td>11. The best teams emerge from self-organizing teams in a flexible structure</td>
<td>High</td>
</tr>
<tr>
<td>12. At regular intervals, the team reflex on how to become more effective, then tunes and refines its behavior accordingly</td>
<td>Medium</td>
</tr>
</tbody>
</table>
SCENARIO TWO: RUNNING

Alignment  Adoption  Adaptation

- Present  Aligning current value-adding practices and processes with Agile
- Short-term  Adapting Agile practices and procedures that align with Agile values and principles
- Long-term  Adapting Agility principles and structures to the context and needs of the team

This scenario supplements current aspects of the production of online learning content with Agile-based practices.

A small core team is brought together to design and develop new online learning content. All roles and responsibilities are respected, agreed and made clear at a face-to-face meeting. Roles include a Project Manager and a Faculty-based Chair who provide both strong leadership and management when needed, ensuring the team have a shared understanding of the process and how to escalate risks and issues. Additional existing roles provide a business perspective (i.e., a Commissioner or specialist skills (i.e., an Editor, Learning Designer), and are pulled in as and when required by the team.

A Learning Design workshop involves the right people at the right time to ensure the team understand the strategic intent behind the learning content, enabling them to prioritise requirements and agree quality as they carry out appropriate analysis and design up front.

Work is planned according to the priorities and scheduled into phases of work. Time and space is factored in early on and throughout for review and feedback of prototype content with students, the Editor and critical readers.

The core team communicate face-to-face weekly, either informally or through scheduled meetings. Shaping progress helps to build a one-team culture. Documentation is purposeful, produced by the right people at the right time. It is accessible to the whole team via a shared online workspace.

Following delivery of key requirements, the team take time to reflect on what went well, and what can be improved. Insights are captured via a Lessons Learned log.

Agile principles manifest in this scenario:

1. Our highest priority is to satisfy the learner through early and continuous delivery of valuable online learning content
2. Welcome changing requirements, even late in development. Agile processes harness change for the organisation's competitive advantage
3. Deliver online learning content. Turn a couple of weeks to a couple of months, with a preference to the shorter timescale
4. Academics and specialist staff must work together regularly and frequently throughout the production of online learning content
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done
6. The most efficient and effective method of conveying information is and within a development team is face-to-face conversation
7. Working online learning content is the primary measure of progress
8. Agile processes promote sustainable development. The production team should be able to maintain a constant pace indefinitely
9. Continuous attention to technical excellence and good learning design enhances agility
10. Simplicity—the art of maximizing the amount of work not done—is essential
11. The best learning designs emerge from safeguarding learn and in a flexible discipline
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly

"Quick catch ups work well with the module team – 10-15 mins every week"
### Scenario Three: Sprinting

<table>
<thead>
<tr>
<th>Alignment</th>
<th>Adoption</th>
<th>Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Long-term</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Short-term</td>
<td></td>
</tr>
</tbody>
</table>

This scenario enhances and adapts the use of Agile-based practices according to circumstances and needs within the production of online learning content.

A dynamic and committed team co-locate to design and develop new online learning content. All roles and responsibilities are agreed and made clear at the start. A dedicated Sponsor provides strong leadership throughout, empowering the team so it can operate effectively. A Project Manager ensures the team has a shared understanding of the process and how to escalate risks and issues, but does not actively direct the team. A Business Analyst provides the bridge between business and teaching perspectives, making sure the final product is fit for purpose.

A workshop involves the team, plus the Sponsor and 1-2 end users, to ensure they understand the strategic intent, are able to agree the quality upfront, use MoSCoW to prioritise requirements and deliverables, and agree how they will be delivered within a fixed period of time. This forms the basis of the Business Case. A Learning Design workshop enables appropriate levels of design upfront.

A Delivery Plan provides a high-level schedule of project ‘timeboxes’, which include time for feedback and iteration. A Timebox Plan provides the detail. Through iterative development, the qualification evolves from the high-level concept to something of value as content is released regularly. Live content is updated as appropriate. The team uses a variety of tools to model development against the priorities, including storyboards, process diagrams and prototypes.

A Agile principle endorsed in this scenario:

1. Our highest priority is to satisfy the learner through early and continuous delivery of valuable online learning content
2. Welcome changing requirements, even late in development. Agile processes harness change for the institution’s competitive advantage
3. Deliver online learning content from a couple of weeks to a couple of months, with a preference to the shorter timescales
4. Academic and subject staff must work together regularly and frequently throughout the production of online learning content
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation
7. Working online learning content is the primary measure of progress
8. Agile processes promote sustainable development. The production team should be able to maintain a constant pace indeﬁnitely
9. Continuous attention to technical excellence and good team design enhances agility
10. Simplicity—the art of maximizing the amount of work not done—is essential
11. The best learning designs emerge from self-organizing teams in a flexible structure
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly

“Everyone buys into the collaborative culture and respects what others contribute”