

Beyond blended

Post-pandemic curriculum
and learning design:
lessons from the higher
education (HE) sector



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Contents

About the project	4
Definitions	5
Learning from the pandemic	6
The background	6
Teaching and learning online	6
All learning is potentially blended	8
Challenges in developing blended approaches	8
Beyond blended	9
What is 'blended' in blended learning?	12
Exploring the four aspects	14
Time, pace and timing	14
Space and place	14
Learning materials: print, digital and other media	15
Groups, roles and relationships: solo, one-to-one, one-to-many and group-based learning	16
Four modes of participation in learning	17
Six pillars for designing 'beyond blended'	20
Engagement and pedagogy first	26
Linking this approach with other design frameworks	30
Design as process	30
Learning activity design	30
Constructive alignment	32
Learning cycles	32
Timeline and storyboarding approaches	32
Universal design for learning	32
Co-production/co-creation	33
Principles-based models	33
Potential benefits of this approach to design	34
Moving forward	36
References	37
Further supporting resources from Jisc	39

About the project

This report summarises phase two of our research into curriculum and learning design in HE in the UK. The research was carried out between November 2022 and July 2023. We hope it will help all staff who support curriculum and learning design including service and department leaders, senior managers, learning designers and curriculum teams in higher education. Additional ‘beyond blended’ resources for strategic leaders and curriculum teams will be available on the Jisc website from autumn 2023.

This project builds on two decades of Jisc research, development and practice in curriculum design. Between 2008 and 2012 we funded 27 institutional projects on curriculum design in the digital university. Since then, we have published a number of sector guides building on the work of those institutional projects and ongoing reviews of emerging practice. The curriculum and learning design project is a new phase of work, begun in 2022 with the primary aim of learning from experiences during the pandemic and from the HE sector’s diverse and creative responses to it.

The context for the project is the multiplying stresses on learning and teaching in HE, as well as creative responses and intentional transformations. Some of the pandemic’s effects have continued to produce stress and uncertainty, as we describe in ‘learning from the pandemic’ on **page six**, with risks to student engagement and to the capacity of teaching staff to respond.

Digital technologies are now thoroughly embedded into learning and teaching as a matter of deliberate investment and policy from HE providers. It is part of an ongoing commitment to developing practice as students adopt technologies to support their studies. This means learning and teaching are always potentially ‘blended’, so we need a more nuanced vocabulary to describe the different ways

learners are participating and the different pedagogic benefits and considerations.

The project has included:

- Two literature reviews, focused on **learning from the pandemic**, and **understanding the new ‘blended’ learning landscape**
- A survey of current practice in curriculum design with 155 institutional responses
- Analysis of 30 design models used by UK HE providers
- 12 in-depth interviews with curriculum leads
- Support and guidance from an advisory body (see acknowledgements on **page two**) and discussion with sector bodies
- Ten workshops with sector representatives from March to July 2023, reaching around 700 participants

Some of this work, including a curriculum design process model for institutions, is reported in our phase one report, **approaches to curriculum and learning design across UK higher education (2022)**.

Definitions

Throughout the project and this report we have used the following definitions.

Curriculum design

Reviewing, planning and developing a programme of study. This is usually a formal departmental and institutional process, mapping to graduate outcomes, benchmarks and professional standards. It produces formal documentation for the organisation.

Learning design

Defining how learning will be supported within each programme, module or unit. This is a professional activity that involves defining tasks, tools and technologies, core content, sessions and class groups, assignments and assessments, and opportunities for interaction and feedback. It produces a learning plan and associated materials to support teaching staff and students.

The terms are often used interchangeably in UK HE, and the two design processes in any case overlap or iterate. For example, feedback from learning in practice (how did learners experience these activities, or meet the learning outcomes?) should inform the next iteration of development. So we use the term '**curriculum and learning design**' to mean all the processes of reviewing, planning and designing a programme of study and how students will learn within it. You can find more about this on our **digital experience insights** web pages.

We have provided definitions of other terms as they appear in this report.

Learning from the pandemic

The background

This section draws on earlier Jisc research and we have updated it for this project. The update drew particularly on the findings of our [digital experience insights surveys](#) for 2022, UUK's [lessons from the pandemic](#) (2022), QAA's [from pivot to permanent report](#) (2022) and the TASO report [online teaching and learning in the time of COVID-19](#) (March 2023). Together, these outputs give us some important context:

- Educators and students adapted extraordinarily well to online learning during the pandemic. HE providers made significant investments in infrastructure for recording and live-streaming classes
- The circumstances of the pandemic shift to online were not conducive to good learning experiences and outcomes, due to many contributing factors beyond the mode of learning
- All students benefited from the opportunity to continue learning, and some students
 - who may have found live classes stressful or difficult to access before the pandemic
 - were able to participate in online learning in ways that suited them better
- However, many students and teaching staff found online learning difficult. The issues included problems with focus and engagement, a lack of social cues, less responsive feedback and a loss of cohort effects such as belonging and collaborative learning
- There is evidence that already disadvantaged students were affected most by these difficulties. They were more likely to have problems accessing reliable devices and connectivity, suitable places to study and relevant study skills

- Since lockdowns came to an end there has been a reverse shift 'back to campus', some of it driven by concerns over the educational and wellbeing costs of pandemic online learning, some by a new awareness of the value of place-based learning and some by other factors such as the findings of the [Student Futures Commission](#)
- While it has undoubtedly shaped the practices of a generation of students and teaching staff, the pandemic learning experience is still playing out in terms of curriculum and learning design. New pressures such as the climate and economic crises and the surge of interest in generative AI are adding to an already complicated picture

Teaching and learning online

During the pandemic almost all educators and students experienced periods of online teaching and learning. This created opportunities for learning and skills development that have continued to shape expectations of the curriculum both for and against online learning, and in many more nuanced ways. However, new skills and expectations have not always been recognised and consolidated. HE providers and teaching departments took different lessons from the pandemic experience, including these:

- Teaching teams that already made use of online spaces and pedagogies were able to make a rapid transition or to continue teaching in familiar ways. These included fully online courses, open and networked learning, blended learning and flipped classroom approaches
- Other pedagogies, topics and learning activities translated differently from place-based to online settings

- Where learning involved interacting with physical materials and environments, such as practical lab and field work, or involved learning on placement, it was hardest to find online equivalents. Online learning could support preparation, consolidation and review of these activities
- Demonstrations were more effective when delivered by video (live or recorded) rather than in person, because everyone can see better
- Educators make complex use of space, pace and presence to shape learning in a physical classroom. Online, many of these cues are unavailable. Educators have to be more resourceful and explicit, and use digitally enabled cues instead
- The online environment produces different teaching/learning relationships. Roles, dynamics and expectations are all changed, educators may be less obviously 'at the front' or 'in control', so different interactions may occur and different norms can be negotiated
- Live online classes offer a variety of ways for students to interact. In large groups particularly, online use of chat, Q&A, polling and emoticons can produce a more interactive experience than a physical lecture, especially if the physical space is not designed for student participation
- Online learners need advice about the purpose of each session, the platforms and functions to be used and what they will get from their active participation. Norms and rules for online learning may need to be set out clearly. Like educators, learners may need to plan ahead to get the most from a session
- It can be difficult for one teacher/facilitator to support different spaces (eg online and in place) at the same time, so additional teaching resource may be required
- Engagement and motivation improve when live online sessions include interactivity (eg questions and answers, micro-tasks, quizzes, online collaborative tasks) and opportunities to work in small groups
- The shift of live classes to online (video or audio based) settings was the most obvious change, and most training and support focused on this transition. However, the shift of independent study to entirely online platforms – with no access to shared spaces, place-based environments and facilities – was also difficult for many students
- New types of assessment flourished, including open-book exams, time-limited assignments and digital projects and portfolios. Some practical and performance-based subjects were assessed via video. These new approaches to assessment continue to be of benefit, for example in the recent call for more 'authentic' assessments as use of generative AI has surged
- The pandemic experience produced opportunities to reconsider learning and teaching and to try new approaches. At the same time it amplified the stresses on students and educators, with effects that tend to work against innovation and are still being felt
- Unless there is effective support for new approaches, and realistic workload modelling (both for teaching staff and for students), the risk is that online and blended learning will remain associated with the negative experiences of the pandemic and useful learning will not be consolidated

All learning is potentially blended

The pandemic accelerated a process whereby physical learning spaces were becoming open to virtual spaces via digital devices and connectivity. Whether it is through facilities provided on site – such as lecture capture, fixed computing and in-class screens – or through their own devices, learners expect continuous access to online spaces, conversations, collaborative environments and materials. Points worth noting:

- This digital access changes the meaning of learning spaces. For example, students in a live lecture can at the same time be engaged with a virtual learning environment, collaborative learning space and their own communications media. Real world and virtual spaces can be accessed in the same learning session
- Digital media can compress, extend and also reconfigure learning time. For example, a lecture recording allows students to review a lecture in their own time, speeded up or slowed down, with friends or solo, and with their own annotations. Collaborative environments can be used live to share ideas, then accessed for independent study and assignment tasks
- Learners can create their own learning pathways across times, places and modes. This allows for macro changes to the curriculum like staggered start times and modular degrees, as well as micro changes such as how students choose to participate in different activities and sessions
- Due the cost of living crisis and other pressures on finances learners are more often studying around other commitments, learning in transit and learning away from campus. These time and place shifts enable learning to continue but can affect engagement and the equity of the student experience
- While all study may potentially be blended, not everyone has equal capacity to blend learning for themselves. Providers should consider how they can offer support with places for independent study, devices to connect with, and digital study skills
- If educators are given the resources to offer a variety of modes and materials, this variety is generally beneficial to students. Apart from giving them more choices in learning, it develops adaptability and resilience – qualities that are likely to be useful throughout life
- Accessibility, sustainability and carbon costs are all concerns that can be addressed in curriculum design. Space and place design are obviously crucial, but virtual environments should also be assessed in terms of these issues. How learning is timetabled across the day, week and term can make a big difference to the impacts of travel
- Programme requirements including modes of participation in learning (online, in place, blended) should be very clear to students, including the skills and study practices required. If there are choices they should be meaningful ones, and the consequences of different options should be clear

Challenges in developing blended approaches

- Providing for diverse modes of learning has implications for resourcing. Not only do HE providers need to invest in places and platforms for learning and facilities such as streaming and recording to facilitate learning across modes, but some resources may need to be provided in more than one mode to support flexibility and choice'
- Teaching staff need additional time to develop alternative modes and to support each of the options effectively

- Managing student expectations around curriculum flexibility is a related challenge. While individual choice can be enabling in the short term, in the longer term it can undermine the benefits of learning in a cohort and of having a well-structured curriculum
- Equitable participation can be compromised by differences in access to digital and real estate, and to well-provisioned spaces for learning online
- Student engagement has been a significant challenge since the return to campus. The reasons are not simple, but this challenge means working with students to understand what blend of learning and teaching modes, of choice and structure, will support them to get the most from their studies
- Contact hours, workload models, timetabling, allocation of spaces and facilities all constrain curriculum design. Unless teaching teams have the flexibility to choose different modes and sessions and to assign different activities to them they cannot take advantage of the potential for diversity
- Our survey, and surveys run under Jisc's **digital experience insights** service, have highlighted workload and a lack of recognition as barriers to teaching staff adopting new approaches
- Students as well as educators need new skills for participating in different modes, including how to manage their presence, focus and motivation, and how to integrate diverse ways of learning into a coherent pathway

Beyond blended

If all learning is potentially blended we need more precise ways of talking about different elements and what they contribute to student learning and engagement. At the moment the vocabulary is evolving, and this can make it harder to involve students in curriculum design

conversations or to discuss curriculum choices with them.

With a more precise and nuanced vocabulary for describing different aspects of 'blended' learning, we can ask questions such as:

- How do online and in place, traditional and emerging spaces support different activities and interactions?
- What combinations of shared and independent, flexible and structured learning time support different students at different points on their learning journey?
- What are the trade-offs between different approaches? For example, personalised learning versus cohort support, responsive versus reflective pace?
- How can students take increasing responsibility for their own learning, including choices of time, place and learning environment, of task timing, sequence and pace? What support do they need to do this?

In the following pages we propose a simple vocabulary for describing modes of learning. We provide a range of curriculum design questions associated with these different modes. Alongside curriculum design, this vocabulary can be used to support wider organisational conversations such as:

- Staff time and workload modelling
- Student time and assignment planning; programme requirements and expectations
- Timetabling and use of estates, including space and facilities design
- Platform procurement, development and integration

10 | Learning from the pandemic

This kind of dialogue requires more than a shared vocabulary. It also means asking at a strategic level:

- Who is involved in the curriculum design space? How can students, alumni and external stakeholders play a meaningful role? It might be necessary, for example, to use accessible terms and visual cues for discussing aspects of learning and the curriculum
- How do professional teams and teaching staff work together in the curriculum design space? How are the outcomes of design, and responsibilities for different aspects of design, shared?
- How is the curriculum as a whole represented to different stakeholders? Perhaps through learning journeys, course maps and guides, session plans, module instances in a VLE?
- How can curriculum design draw on the best information available? Maybe through surveys and consultations (including with alumni and employers), using learning and curriculum data, by horizon-scanning and drawing on the expertise of relevant professional, statutory and regulatory bodies (PSRBs)?
- How does the curriculum design process accommodate the rate of change in learning methods and materials? How is flexibility built in?
- How are institutional policies, priorities and agendas brought to life in the design process? Relevant prompts, principles, frameworks etc may be needed
- Who is involved in the design of teaching and learning spaces? How are these spaces made flexible so that a range of different activities can take place online and in place, teacher-led and student-led?
- Who is involved in the procurement of learning and teaching platforms? How do platforms support learners to connect their learning across time and place?

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Table 1: post-pandemic curriculum design: a summary

	Pre-pandemic	Post-pandemic
Focus of design	<ul style="list-style-type: none"> • Digital activities and resources 	<ul style="list-style-type: none"> • Digital modes of learning (online, in place, blended and beyond)
Key technologies	<ul style="list-style-type: none"> • Virtual learning environments • Digital media and learning resources • Productivity tools and specialist software 	<ul style="list-style-type: none"> • Live digital environments • Lecture capture • Collaborative environments and shared productivity tools • (Emerging) immersive environments
Design frameworks	<ul style="list-style-type: none"> • Learning activity design • Taxonomies of activity and outcome • Typologies of (digital) tools • Session planning 	<ul style="list-style-type: none"> • Universal design for learning • Learning and design cycles (iterative) • Timelines, storyboards and pathways • Flexible pathways
Learning and teaching transformation	<ul style="list-style-type: none"> • Ubiquitous access to digital resources • Design of digital materials • Learning activities with generic and subject specialist software • Digital assessments in the mix 	<ul style="list-style-type: none"> • Teaching and learning online • Design of learning environments (digital and digitally enhanced/immersive) • 'Born digital' pedagogies • New assessment types eg digital projects and e-portfolios, use of video
Organisational transformation	<ul style="list-style-type: none"> • Integrating platforms • Ubiquitous access to networks • Content and data services delivered online • Bring your own device (BYOD) for learning • Support for embedding technologies 	<ul style="list-style-type: none"> • Space and place (re)design • Ubiquitous recording, live-streaming • Teaching and student support services delivered online • Flexible modes of participation • Support for digital pedagogies

What is 'blended' in blended learning?

Over the last two decades, the literature on blended learning has covered a range of different terms that may be 'blended', including print blended with digital media (eg Sharpe et al 2006) and 'traditional' with 'web-based learning' (Oliver and Trigwell 2005).

The **Office for Students (2023) now defines blended learning** as learning that combines in-person delivery and delivery in a digital environment, while our own recent primer, **reimagining blended learning in higher education** (2020) defined it as a combination of face-to-face learning and dynamic digital activities and content. These are useful starting points.

As we learned from the pandemic, live video-based environments are now widely used in university learning. Participating in this way still means managing presence or the experience of being 'in person', just as a traditional classroom does. Video classes can even allow staff and students to feel more directly 'face to face' than in a large classroom, by managing screen lay-outs and close camera angles. So we have used the term 'in place' to describe when educators and learners are co-located (usually but not always on campus). In contrast, 'online' learning describes when participants come together in the same digital platform, without the need to be present at the same location.

In place and online learning environments come with a range of facilities, functions and materials. These can be encountered synchronously (meaning live, at the same time, in shared or timetabled time) or asynchronously (meaning at different times, usually within a time window such as a teaching week or an assignment timeframe).

In this report we set out to clarify the meaningful choices that curriculum teams can make about how students will participate in learning. We call these 'modes of learning'. For example, synchronous group learning on campus, in sessions of around an hour to two hours, are familiar and continue to be valued in most taught degrees. Lectures, seminars and lab sessions are some examples. Digital media and environments create new options. For example, online shared documents, design boards and wikis allow students to share ideas and build knowledge together over time in a way that would be very difficult to reproduce in the physical classroom. New types of session and in-session activity are emerging that have their own value beyond translating familiar in place sessions to an online environment. These will continue to evolve as digital technologies are adopted in new ways.

Digital modes of learning can also blur what were once clear boundaries, creating intermediate settings. As we've already noted, digital media can bend time boundaries as well as offering new experiences of space. This means students and educators have to negotiate new choices and trade-offs, and situations where expectations may be unclear. We discuss some of these emerging possibilities and challenges.

Many features of time, pace and place need planning ahead, so the curriculum can be supported by systems such as timetabling, room bookings, student group allocations and platform registration. Other choices may be open for educators or students to make as a programme of study unfolds. For example, it may be possible for students to choose which of several collaborative platforms to use for a shared activity or to select the medium in which an assignment is submitted. Particularly with a new platform, educators may want to try different group sizes and online activities. It is always helpful to have a shared understanding of the choices available and their implications for learning.

Before we explore time/pace and place/platform, we have looked at how these relate to two other aspects of learning – materials and groups – that help to define the learning activities in a given curriculum design. This gives four aspects of learning that can be 'blended':

1. Time, pace and timing (synchronous and asynchronous)
2. Space (place and platform)
3. Learning materials: tools, facilities, learning media and other resources (digital, print-based or material)
4. Groups, roles and relationships (teacher-led and peer learning, varieties of learning group)



Exploring the four aspects



Time, pace and timing

Learning may be synchronous (live, shared time) or asynchronous (independent, own time).

With synchronous learning high-quality, responsive interactions are afforded by bringing people together at the same time and place. In asynchronous learning individuals choose when to complete the task. The QAA in its course design, approval and management playbook (2022) includes as a condition of success that: “there is a strong pedagogic rationale for whether sessions will be synchronous or asynchronous, and how both forms of activity interact to enhance learning”.

Asynchronous learning is usually task-based, with learners choosing when to complete the task. In reality, independent study tasks have a time window or deadline to help students stay on track with the requirements of the course and with each other. Novice learners are often given some guidance and structure so they can manage independent time productively. Pedagogically, live sessions are more responsive, provide more social cues and interactive possibilities and are good for rapidly building ideas or solving problems together. Responsive teaching can be fast and rewarding in a live session. Asynchronous time is pedagogically valuable for planning, reflecting, reviewing, working on extended assignments and undertaking more extended collaborations. Responses to student work are likely to be more considered and to require more consideration, too.

In curriculum design, time is usually mapped out in sessions and timed tasks. The learning activities suitable for a particular session depend on its length, the number of students and teaching staff brought together and what spaces or platforms are available. Synchronous

sessions can include open-ended and student-led activities, but are often teacher-led to ensure time is used well. Asynchronous learning will tend to be student-led. A general goal of higher education is that students should undertake progressively more self-directed learning and should have more agency over time and timing, order and pace.

Digital modes of participation can change learning time in a number of ways. For example, the option to record live sessions enables students to review them later at their own pace. Collaborative documents and design boards can be used live for rapid development of ideas, and in private study time to build on these shared outcomes. Even when a class is working together in a physical space such as a lecture theatre they can quickly move to shared or private digital spaces for reflection or consolidation activities.

Poor connections can create delays in live online sessions that participants and educators have to manage. This is a less welcome aspect of ‘time shifting’ that comes with digital participation.



Space and place

Learning may take place online and/or in place (on site).

A wide variety of places exist on campus for synchronous, in-person classes including lecture theatres, seminar rooms, tutorial rooms, labs, studios, practice rooms and workshops. Some off-campus places may also be used for learning eg placements, site visits and field work. Spaces may be specialised to particular kinds of learning – such as labs and practice rooms – with relevant material resources and facilities available. The same is true of digital environments designed for learning.

Online environments for live learning include video-based platforms such as Zoom, Teams, Blackboard Collaborate, BigBlueButton and others. Groups of different sizes can be managed through the use of functions such as chat or Q&A, break-out rooms and permissions. Collaborative environments such as design boards and shared documents can be used live, and some have live chat or video. Similarly, simulations and games may be used by a number of students at once (synchronously) or for private practice. Platforms shape learning interactions through their navigational features, on-screen tools, forms of presence (eg video, audio, avatar, chat, screen sharing), input and output media, and the permissions available to different users. As discussed, all these may require planning and coordination if interactions are to happen smoothly.

Campuses seem designed for synchronous learning, but many spaces are used for independent learning too. These include library desks and computer labs, cafes, learning pods and practice spaces such as studios, workshops and labs. Since the pandemic and cost of living crisis, many HE providers are designating more spaces for students to book or drop into at times that suit them. Student services are often provided around drop-in areas for ready access.

For asynchronous learning online, platforms include the now familiar virtual learning environment (VLE) with the functionality of threaded discussions, wikis, online resources, quizzes and diagnostics, tests and online tutorials. Collaborative documents, design spaces, simulations and games, and virtual and augmented reality (VR and AR) spaces can also be used by learners in their own time, though these are all platforms that allow live and independent study to be integrated.

Platforms and places can be seen as interconnected. Contemporary learning space design pays particular attention to digital devices and connectivity with plug-and-play features, charging stations and flexibility to integrate new technologies over time. Equally, when

students are participating online, consideration must be given to what they need 'in place', whether that is simply a networked computer or elaborate augmented reality devices and virtual labs. With headsets, students can even participate from public places such as buses and trains. What is happening in their physical environment may affect their online engagement, such as their concentration or willingness to use their camera and mic.

A final consideration is whether places and platforms are owned by the education provider and provided universally to students, or accessed by students independently. These differences are particularly significant when it comes to issues of equity, diversity and inclusion. The provider's estates should be accessible and free to students and should provide all the functions and resources they need for learning. Third-party platforms may not have the same accessibility and security standards. Their use by some students has equity implications, and makes it harder for students to integrate their learning or get feedback on their work. Nevertheless, there are many reasons why they may use third-party platforms and why educators may recommend them. Aesthetics, familiarity, usability, specific functionality and marketing all play a role.



Learning materials: print, digital and other media

In relation to learning content, materials were traditionally print-based (text or graphical). Both live classes and own-time study now involve the use of digital resources far more than print – e-books, e-journals, presentation slides, videos, digital maps and timelines, digital notes and annotations. The prevalence of digital media for learning – especially time-based resources such as audio and video and interactive resources that structure pace and progress – has implications for how students use their independent study time. Curriculum teams will also need to be aware of the rising costs of e-books and subscriptions since lockdown, and the limitations set by publishers on the use of digital format texts.

In relation to learning of practices and processes, it is increasingly common for material resources – the environment itself as a learning resource, tools and instruments, materials for making and doing – to have digital counterparts.

Developments in virtual and augmented reality, immersive environments and haptics as well as coding, making and 3D printing all mean that practical learning is undergoing the same shift towards digital media that the learning of concepts has already undergone. Digital practices themselves constitute a whole new curriculum, as different subjects demand the use of different software, devices and media, environments and methods.

As these examples show, digital media can blur the distinction between synchronous and asynchronous learning, real world and online space – or at least allow them to be blended in new ways. For instance, a collaborative space or virtual world might be used in a live class, while the same environment can be visited at a later time, solo or in self-organised groups. Digital recordings allow live sessions to be reviewed in students' own time and at their own pace, and the convenience of these recordings can undermine students' interest in attending sessions on campus. So digital media change the meaning and value of the live experience. Meanwhile, video-based and interactive media are time-based in a way that shapes the pace and order of learning, even if learners choose when to access them.



Groups, roles and relationships: solo, one-to-one, one-to-many and group-based learning

Digital environments can change the meaning and the learning potential of interactions in many ways. There is no room here to explore the many kinds of learning, teaching and peer learning relationship that are valuable in higher education. Once again, though, the lack of social cues means interactions of all kinds may need to be more closely planned, with norms of behaviour and time/pacing made more explicit.

While this can suit more reflective learners it may frustrate those who prefer a more responsive and dynamic classroom environment. Another important factor is that interactions leave more traces online. It can be helpful: learners can simply download recordings or the content of whiteboards and chat windows. But a generation of students with experience of social media may be wary of having their words or image captured while online. Even with strong rules in place about confidentiality, and even when a session is not being recorded, students can be unwilling to contribute on screen.

Collaboration and discussion are typically more responsive in a live session, and learners progress more when they are in a zone of proximal development (ZPD) with their peers. So group work is a good use of synchronous session time, especially for shared knowledge-building and problem-solving. In live online sessions, break-out rooms and collaborative environments allow a fine-grained control of group composition and help students track their contributions; both are features that can be more tricky to manage in a place-based class. Having every student occupy the same small rectangle of screen space also provides an equitable starting point for discussion. Online, however, it is not quite so easy to form and re-form groups on the fly.

Different ways of interacting naturally suit different learners and different activities. Online, students can contribute through live chat, poll responses, Q&A, on mic and on camera. Having their own camera and mic means students can often participate more equitably online than in a large teaching room, where the assumption that teaching will be from the front may be built in. There may be advantages to including some online activities (eg quizzes and polls) in large on-site lectures so that everyone has a chance to contribute. Online or in place, students who don't like to speak publicly can contribute to shared outputs such as notes and drawings, and may contribute more happily in small 'buzz groups' or paired tasks.

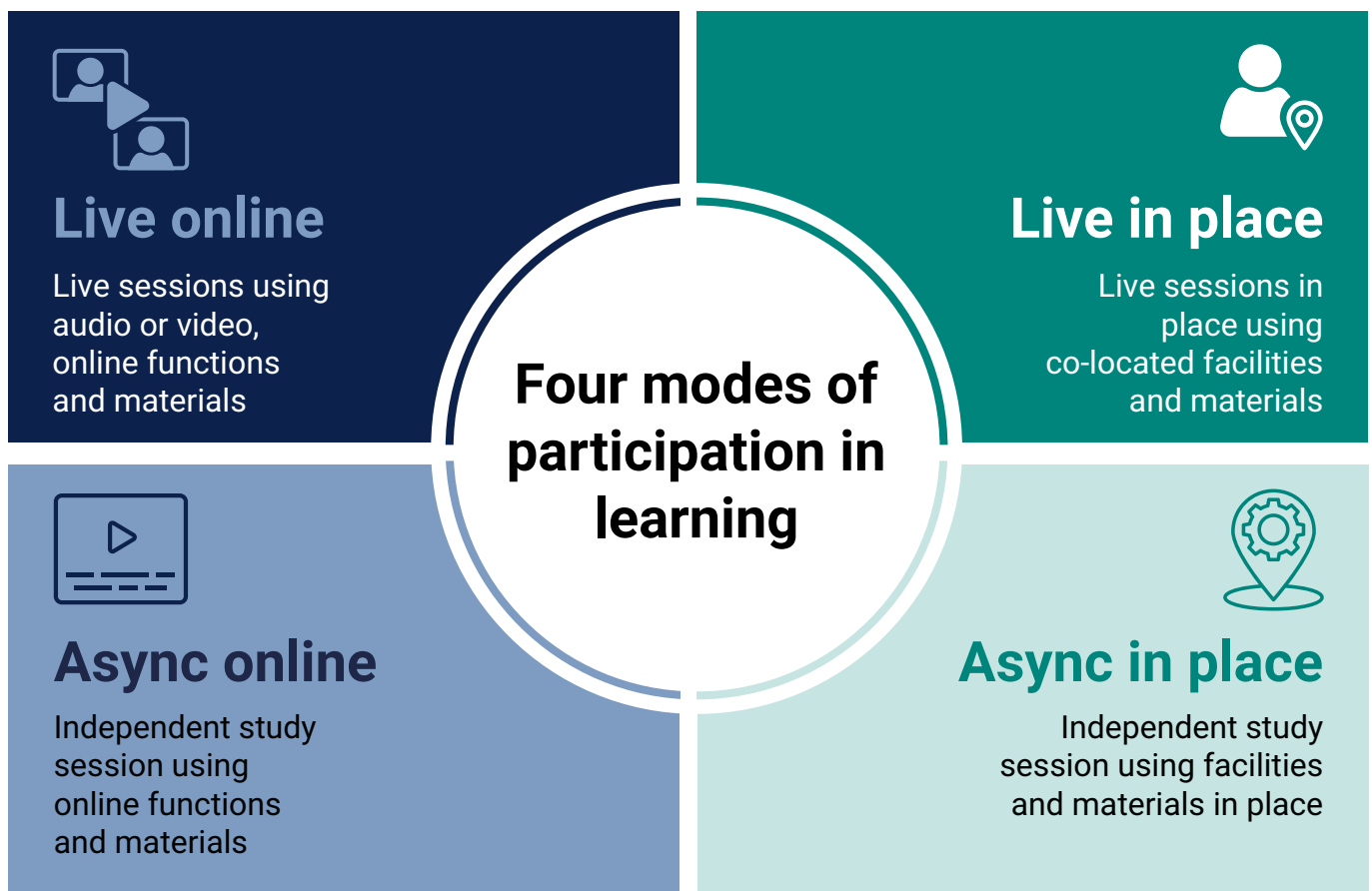
Four modes of participation in learning

Of the four aspects we have just considered, **learning materials** and **groups, roles and relationships** can often be decided flexibly and collaboratively as learning unfolds, while **time and pace (1)** and **space and place (2)** shape the overall design of the curriculum and require some forward planning.

Considering the possible combinations of 1 and 2, we arrive at four possible modes of learning that shape every session, activity and interaction.

- Online and synchronous (live)
- In place and synchronous (live)
- Online and asynchronous (independent)
- In place and asynchronous (independent)

Figure 1: four modes of participation in learning






These four modes align with three 'modalities' identified by an Advance HE report, **Beyond Flexible Learning: practice guide** (2022).

In this guide, the first modality is also 'live online'. The second modality is called 'in person' rather than 'in place', but clearly refers to the same scenario: "learning that requires physical co-presence of educators and students". The third modality includes all asynchronous learning under the term 'self-directed learning', regardless of whether it takes place online or on site. We agree that most independent learning involves online resources in some role. Our reason for keeping the place-based aspects of independent learning in view is that they help to ensure equitable access. Some students don't have the place-based resources they need to study successfully – including online – such as private study space, connectivity, a reliable laptop with all the software they need. Many HE providers are now investing in campus-based study facilities even while they are making more learning available online, for reasons of equity and wrap-around student support.

Each mode supports a different set of learning sessions with specific opportunities for learning. Different subject areas will make use of different session types, sequences and blends. The next table outlines a number of examples. More detailed guidance will be published on the Jisc website from autumn 2023, showing how different session types can support different interactions and learning activities, so linking our descriptions of mode with more familiar considerations from learning design.

Table 2: session types in the four modes of learning (examples)

 Synchronous in place sessions	 Synchronous online sessions	 Asynchronous in place sessions	 Asynchronous online sessions
-	-	Study session (usually with online resources)	Study session (usually with online resources)
Lecture/presentation or demonstration	Online lecture/presentation or demonstration	-	Recorded lecture or demonstration
Practical or lab	Virtual practical or lab	Self-directed practice or research session	Virtual practice or research session
Field work or site visit	Virtual field work or site visit	Self-directed practice or research session	Virtual practice or research session
Seminar or discussion	Online seminar or discussion	Self-organised discussion	Asynchronous (threaded) discussion
Presentation, peer review, show and tell	Online presentation, peer review or show and tell	-	Post work for comment, annotation, feedback
Study skills workshop	Online skills workshop	Guided practice (usually with online resources)	Guided practice (usually with online resources)
Tutorial	Online tutorial	Drop-in/office hours session	Communication with tutor
Check-in, ice-breaker, meet and greet	Virtual check-in, ice-breaker, meet and greet	Self-organised meet-up	Message-based online social space
Group work, collaborative task/project session	Virtual group work (live) or shared immersive session	Self-organised group work	Online collaboration (asynch)
In-person live assessment eg exam, viva, practical	Online live assessment eg exam, virtual practical	Course work, assignment, time-limited assessment	Digital assignment, time-limited assessment

Six pillars for designing 'beyond blended'

We have described four modes of learning and some of the educational reasons for planning a particular blend of modes, across diverse sessions and activities. Apparently binary choices are complicated by the use of digital means and media. Sometimes they no longer look like choices, but like ways of linking learning across time and space.

Working closely with our advisory group and workshop participants we have developed a simple set of precepts or 'pillars' for curriculum design in the four modes. These are not intended to replace other principles and frameworks, but to be used alongside them.

The pillars can be referenced early in the design process, when considering the overall shape of the curriculum, the number and type of sessions, and the journey of learners through place and platform, live time and independent study. The six pillars and the various lenses we describe in figure 2 can also be used near the end of curriculum review, to check back that the questions we pose have been asked, even if the answers are still emerging.

These pillars, their implications and applications to curriculum design, are explored in more detail in a series of **curriculum lenses** and **strategic lenses** we have developed with stakeholder support. Each lens offers questions for curriculum teams or for leaders of strategic projects and agendas. They are available in the forthcoming beyond blended web guide (autumn 2023).

The **curriculum lenses** currently include: curriculum design; assessment and feedback design; student engagement; developing digital capabilities in the curriculum; graduate outcomes and employability.



The **strategic lenses** currently include: space and place design; choosing digital platforms; timetabling and workload modelling; student engagement; equity, diversity and inclusion.



Table 3 includes a number of general questions and considerations that follow from the six pillars.



Figure 2: six pillars for designing 'beyond blended' learning



Table 3: the six pillars as prompts for curriculum design and strategic thinking

	Curriculum prompts	Strategic prompts
 <p>Place Learners and educators are always (physically) somewhere</p>	<p>Where are our learners in each session, and across a typical learning week? How does this pattern suit their needs?</p> <p>What do learners need in place for each aspect of their learning?</p> <p>What is the value of co-presence in this particular learning? How are we maximising that value?</p> <p>Can learning spaces be reconfigured, or do we have access to a variety of spaces to suit different requirements?</p> <p>What makes it difficult for learners to be physically present and how are we helping? What are the needs of different groups of students eg international students, commuter students?</p>	<p>How are the needs of each programme of study factored into timetabling and room bookings?</p> <p>How are campuses and learning spaces designed to maximise the benefits of in-person learning?</p> <p>Are spaces flexible and reconfigurable?</p> <p>What specialist learning spaces are available and might we need to develop in response to emerging technologies?</p> <p>What does it mean to be on site at their HE provider's premises for our students? How are we building inclusive in-person communities?</p>
 <p>Platform Learners and educators can always be (virtually) somewhere else</p>	<p>What generic platforms are provided and what specialist platforms, apps and online communities do we ask students to access?</p> <p>What alternatives are students choosing and why?</p> <p>What is the value of virtual participation for learning in this programme and how are we maximising that value?</p> <p>What makes students want to engage online?</p> <p>What makes it difficult for learners to participate fully online and how are we helping?</p>	<p>What platforms are provided and what are learners choosing for themselves?</p> <p>How do learners and educators rate our online platforms and what improvements or alternatives would they like?</p> <p>How are the needs of different programmes and groups of students taken into account in the development of platforms and digital infrastructure?</p> <p>How are we building inclusive online communities within and beyond programmes?</p>

	Curriculum prompts	Strategic prompts
 <p>Pace Learners experience time and pace differently (synch/async or responsive/reflective)</p>	<p>What different kinds of session (synchronous/asynchronous) are offered for different aspects of learning?</p> <p>How are these timetabled across the week to provide a predictable rhythm and to support good study habits?</p> <p>How do we ensure that live sessions are used to maximum value?</p> <p>How does independent, reflective study time support learners' growing self-direction?</p> <p>What different kinds of assessment are scheduled (eg live, time-limited, extended) and how are they timetabled to avoid overload?</p>	<p>What flexibility is afforded for curriculum teams to choose different session types and schedules, including assessment schedules?</p> <p>How do we support students outside of timetabled hours?</p> <p>What opportunities do we offer, or plan to offer, for flexible study such as part-time, staggered start, micro-credentials etc? How do these meet the changing needs of learners and stakeholders?</p>
 <p>Blend Most learning has both in place and online, sync and async elements</p>	<p>How are curriculum resources (tasks, materials, interactions) distributed in a range of session types (sync/async)?</p> <p>How are places and platforms combined to support different activities, including assessment activities?</p> <p>How is the value of different modes explained to learners?</p> <p>How do we help learners to use their own digital devices and resources, as appropriate?</p>	<p>What constraints of the physical campus can we mitigate by using our virtual estate (eg carbon costs, outdated teaching rooms)?</p> <p>How are we planning to integrate online and in-place learning experiences better?</p> <p>How can we do this across places and courses of study, rather than for a few specialist locations?</p> <p>How do learners and educators contribute to our curriculum models and frameworks, including for blended learning?</p>





	Curriculum prompts	Strategic prompts
 <p>Flex Learners and educators expect choice and flexibility in mode(s) of learning</p>	<p>When are decisions made about modes of learning and who makes them (eg programme team, cohort teacher, individual learner)?</p> <p>What choices do learners have about how they participate, and what are the trade-offs (eg staff workload, loss of cohort effects)?</p> <p>How is engagement sustained in different modes?</p> <p>How do learners integrate their learning across different modes (eg notes, task outcomes)?</p> <p>What choices do learners have in how they are assessed?</p> <p>Is assessment well matched with modes of learning and teaching?</p>	<p>What day-to-day flexibility is afforded to educators and learners to support their needs? Are our systems flexible enough?</p> <p>How does curriculum flexibility support our strategies for accessibility and inclusion?</p> <p>Do we have a strategy for offering diverse modes of assessment and feedback?</p> <p>How is resilience being built into the curriculum system to meet future shocks?</p> <p>How can learners access services away from campus and out of timetabled hours?</p>
 <p>Support Learners and educators need support to engage with a diversity of modes</p>	<p>What devices and skills are needed by learners to engage fully in this learning?</p> <p>How are skills practised and supported in the curriculum? How are individual needs identified?</p> <p>Have we identified the time and workload associated with each element of the curriculum and allocated staff appropriately?</p> <p>How are staff supported with any additional skills to manage teaching in diverse modes?</p>	<p>What did we learn during the pandemic shift and how are we consolidating that learning?</p> <p>How are we investing in staff/student digital capabilities, eg for different modes of learning, teaching and assessment?</p> <p>How are we investing in platforms and devices for a greater diversity of modes of learning?</p> <p>What support is in place for learners and educators accessing learning online?</p> <p>How do we keep our curriculum up to date as new modes emerge (eg immersive learning, AI-assisted learning)?</p>







Engagement and pedagogy first

Talking about modes of participation, sessions and activities is only the first step. We need to draw on established research and new thinking to understand why a particular session might be delivered live and online, rather than self-directed and in place, or how these two sessions might complement each other. With student engagement a priority, if not yet a crisis, it is particularly important to understand how different sessions can be designed to engage students actively in their learning.

Table 4: comparing in-place and online learning sessions

	Learning in place  	Learning online  
The learning experience	<ul style="list-style-type: none"> • Can be experienced by students as more responsive, (inter)personal and engaging • Can be experienced by students as less explicit, reflective, convenient 	<ul style="list-style-type: none"> • Can be experienced by students as more explicit, reflective, convenient • Can be experienced by students as less responsive, (inter)personal and engaging
Pace and presence	<ul style="list-style-type: none"> • Presence can be established naturally and rapidly • Pace is likely to be faster, more natural and responsive • Some students may find the pace and social demands of the face-to-face classroom difficult • Other students may trust the classroom process due to familiarity and the presence of non-verbal cues • Teacher presence may depend on where students are sitting, particularly in a large room 	<ul style="list-style-type: none"> • Presence must be established intentionally • Cameras on/off may profoundly impact on the sense students have of each other's presence; however this must be negotiated sensitively • Pace is likely to be slower, with activities and transitions more carefully planned • Some students may participate more easily when they have time to respond, and bodily and social cues are not foregrounded • Other students may find it harder to trust the classroom process due to unfamiliarity, uncertainty about roles and the lack of non-verbal cues • All students have a similar experience of teacher presence.

	Learning in place  	Learning online  
Classroom culture	<ul style="list-style-type: none"> • Expectation may be that a member of teaching staff will control the classroom space and what happens there • Expectations about classroom space and culture may be shaped by school experiences, popular representations of HE • Room design and configuration strongly shape classroom expectation 	<ul style="list-style-type: none"> • Classroom rules, roles and norms need to be more explicitly negotiated • Expectations about classroom culture including role of teaching staff may be more flexible and open to change • Expectations about online classroom culture may be lacking, or may come from other online experiences (not necessarily in education eg social media)
Layout and facilities	<ul style="list-style-type: none"> • Wide variety of specialist spaces available eg labs, studios, lecture halls, tutorial and seminar rooms • May be less flexible in use due to fixed furniture and configurations • Physical layout of the class shapes learning and teaching including rules, roles, group dynamics • Positions of learners within classroom can influence how much attention they get and give • Students all occupy the same space equitably (they may occupy it differently eg with different cultural experiences and sensory/accessibility needs) 	<ul style="list-style-type: none"> • Platforms tend to be similar though they may offer different functions and user experiences • More flexible in use, but less well adapted for specialist session types and activities • Explaining tools and functions, enabling learners to change screen layout, and sharing control of mic/screen all help to shape expectations • Equity and privacy concerns around the use of private spaces and devices to participate • All students occupy the same space (different qualities of device, bandwidth etc may influence their experience and other participants' experiences of them)









	Learning in place  	Learning online  
Active engagement	<ul style="list-style-type: none"> • Polling, quizzing and other micro-tasks may be used to elicit and check engagement; body language and eye contact may help as well • Student contributions can be elicited naturally in the flow of the session; conversation may flow among students more easily • Room layout and acoustics may work against students contributing: students may need a mic to speak • Room layout may make it harder for students to lead activities • Some students may dislike contributing in public 	<ul style="list-style-type: none"> • Verbal contributions can be elicited directly or indirectly; students may need permission to take control of the mic • Student engagement can be elicited and checked using chat contributions, emojis, poll responses. If cameras are on, facial cues and gestures may indicate engagement • Students can easily share their screens and lead class activities • Some evidence educators can ensure more equitable contributions, with careful monitoring • Some students may choose not to turn their cameras on; some students may be concerned about their words and/or image being recorded or captured
Group work	<ul style="list-style-type: none"> • Easy to organise students into pairs/ small groups on the fly, and to transition into plenary activities including feedback • Students are likely to self-organise, eg into existing friendship/nationality groups, which may not create the most dynamic learning • May be difficult to organise students into larger breakout groups depending on layout and acoustics 	<ul style="list-style-type: none"> • Easy to organise students into groups of different sizes and to have considerable control over group composition • However, group work takes planning and time may be lost transitioning into and out of breakout rooms
Notes and records	<ul style="list-style-type: none"> • Sessions may be recorded, depending on facilities in the room, quality of audio etc • Students can relatively easily take their own notes using a laptop/tablet, audio recorder etc 	<ul style="list-style-type: none"> • Students have a variety of options for recording sessions eg audio/video recordings, chat window, whiteboard • It may be difficult for students with just one screen to take simultaneous notes while participating in a live class

Table 5: comparing live and asynchronous learning time

	Synchronous learning  	Asynchronous learning  
The learning experience	<ul style="list-style-type: none"> • Can be experienced by students as more dynamic, guided and engaging • Can be experienced by students as less reflective, self-directed, convenient 	<ul style="list-style-type: none"> • Can be experienced by students as more reflective, self-directed, convenient • Can be experienced by students as less dynamic, guided and engaging
Locus of control	<ul style="list-style-type: none"> • Sessions are usually led by an educator, though students may be invited to manage part of a session, eg to present, respond, lead an activity • Educators may scaffold or sequence tasks in a deliberate way to support learning (eg in a learning cycle or flipped classroom model) 	<ul style="list-style-type: none"> • Tasks and outcomes are usually given by an educator, but time, timing and pace are determined by the learner • Learners need considerable time and task management skills • Learners structure their own approach to the task
Typical locations	<ul style="list-style-type: none"> • On campus: lecture and seminar rooms, tutorial and workshop rooms, laboratories, studios • Off campus: field work sites, visits and placements • Assessment sites: exam halls, viva rooms, practical rooms (eg labs), performance spaces 	<ul style="list-style-type: none"> • Space for personal/private study, on or off campus; access to specialist learning spaces e.g. labs, studios • Personal or virtual learning environment with access to learning resources • Text-based and multi-media production tools • Environments for knowledge building, sharing and review e.g. threaded discussions, wikis, shared documents, design spaces, project development platforms, virtual labs, simulations
Group work	<ul style="list-style-type: none"> • Rapid knowledge-building, mind-mapping, problem-solving, design sprints • Live discussion, dialogue and debate • Giving and receiving feedback, peer review 	<ul style="list-style-type: none"> • Project-based working and extended collaborations • Developing a shared knowledge base • Reaching out beyond the classroom eg public and open pedagogies, especially across time zones
Typical assessments	<ul style="list-style-type: none"> • Examination, viva, practical, performance 	<ul style="list-style-type: none"> • Timed assessment, assignment, project, iterative assessment, 'authentic' assessment, workbook, portfolio

Linking this approach with other design frameworks

Thinking about learning and curriculum design in terms of time/timing, place and platform allows for thinking about the whole course context and setting. It does not mean abandoning other well-established processes or principles of design.

In fact, thinking about modes of learning in this way supports more established frameworks. The examples referenced in this section come from the review of models in use (over 30 models from across UK higher education) conducted in phase one of this project.

Design as process

Examples: [Co:Lab \(2022\)](#), [Carpe Diem \(2020\)](#), [UCEM module \(2020\)](#) development process, [ABC Learning Design \(2015\)](#) workshop (process, not content).

'Beyond blended' is a set of considerations that can be included in a wide range of design processes. It can be used in the sequencing phase of a typical design process to decide what sessions will be delivered and how students will participate in them. In the resourcing phase of a design process it can support planning for the physical spaces required and any specialist facilities and materials, the platforms to be used and why these are appropriate.

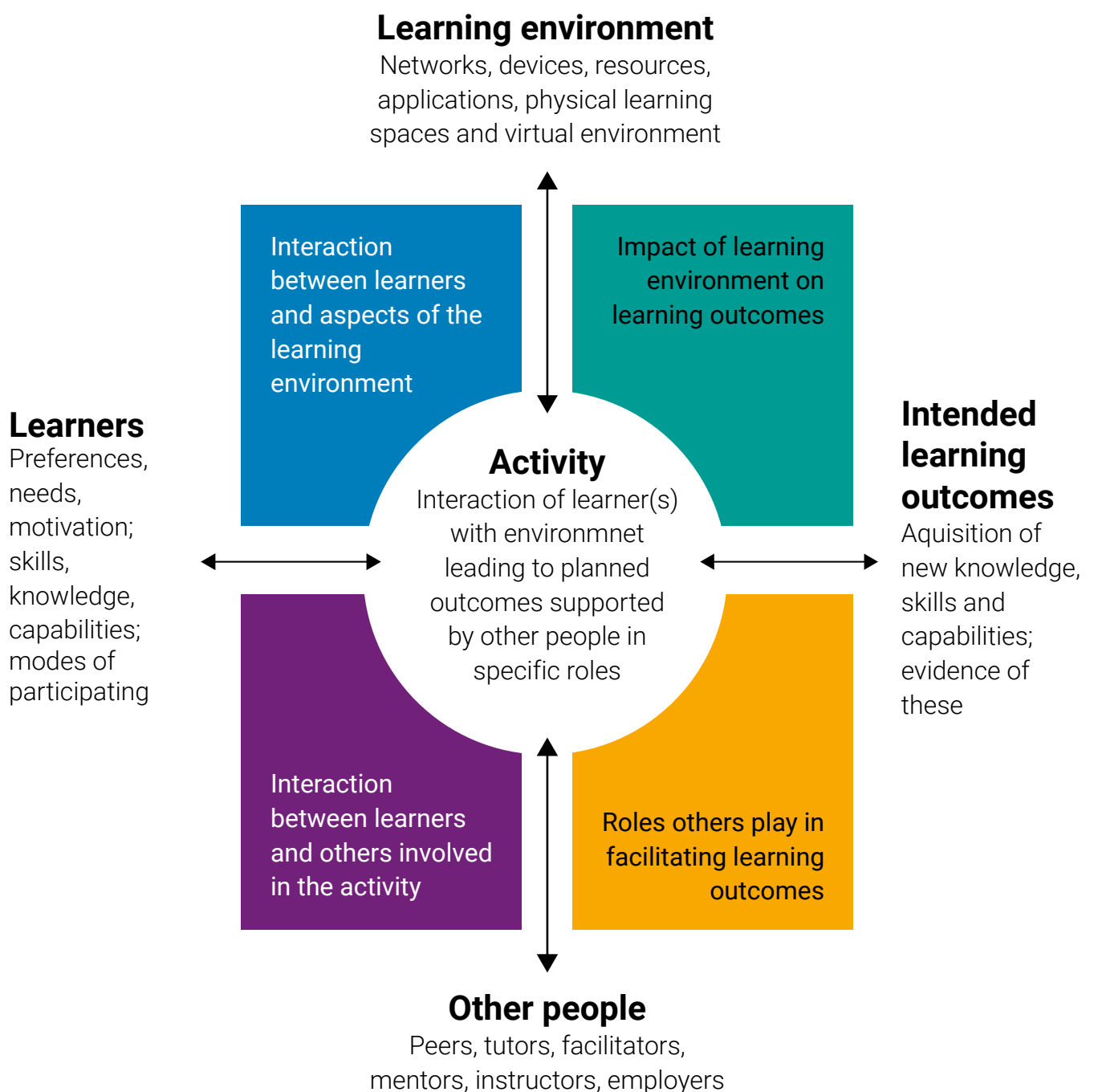
Learning activity design

Examples: [Laurillard's Conversational Framework \(2002\)](#), [ABC version \(2015\)](#) of Laurillard's activity types, [Open University \(OU-LDI\) \(2012\)](#) activity design cards.

The four issues we identify in 'beyond blended' (place/platform, time/pace, materials and group interactions) are included in most learning activity models. More detail on mapping modes to activities and interactions is available in the forthcoming Jisc 'beyond blended' web guide (autumn 2023).

For example, an activity design model developed in previous [Jisc projects](#) has 'time' as an axis running through the middle of the model, from learners' prior state at the left to their achieved outcomes at the right. This time axis can be distributed into a range of sessions and activities within them. At the top of the model is the learning environment (place or platform). The roles that other people play in the learning activity (at the bottom of the model) are partly determined by the constraints of time and place.

Figure 4: learning activity design from Jisc (2018)



Constructive alignment

As well as aligning activities with outcomes (for example using **Bloom's taxonomy (2001)** [revised], the **SOLO taxonomy (2019)**), activities can be aligned with an appropriate mode of learning using the section above on engagement and pedagogy. In resources available from the forthcoming 'beyond blended' web guide we suggest a wide range of activities mapped to different sessions and modes.

Learning cycles

Examples: **Kolb's experiential learning cycle (1984)**, **TREC (2021)**, **Merrill's Instructional Design Principles (2002)**, **flipped learning models (2006)**.

These models describe a preferred order of activities to support and structure learning. Different modes of learning might be more or less appropriate at different phases of the cycle. For example, a flipped classroom approach might typically start with assimilation activities (asynchronous and online) followed by a consolidation session (synchronous, in place) where students can ask and answer questions, share ideas, practice application and get formative feedback, followed by a review phase (online again). A Kolb learning cycle might schedule on-site activities during the concrete experience and active experimentation phases. These activities could be live or asynchronous (eg students collecting data within an allocated time window, with access to a lab or field site).

Timeline and storyboarding approaches

Example: **ABC Learning Design (2015)** (storyboard aspects).

The different sessions outlined in Table 2 (**page 19**) can easily be incorporated into a timeline or storyboard approach. They are explored in more detail in the forthcoming 'beyond blended' web guide.

Universal design for learning

Example: **UDI Guidelines(2018)**.

One of the benefits of exploring modes of learning from an educational perspective is that it reveals differences in how students respond to place and platform, the different paces of learning students prefer (reflective/ responsive) and whether they prefer tasks to be live or undertaken in their own time, structured or relatively open-ended. Programme teams can consciously use different modes to ensure students all have some learning experiences that suit them, or that challenge them to try new approaches. Within modes, teaching teams can provide multiple ways for students to interact by exploiting different configurations and functions (**see Table 4: comparing in-place and online learning sessions**). This is highly compatible with the first Universal Design for Learning (UDL) principle of offering students multiple ways to engage and the third principle of offering multiple means of acting and expressing ideas.



Co-production/co-creation

Attention to modes of learning does not create any new opportunities to involve students in curriculum planning. But it does help to engage students meaningfully if there is a clear vocabulary that describes different sessions and kinds of learning and also puts student learning centre stage. Talking about responsive and reflective time, or the difficulties of learning in transit, or the way certain resources can cross time and place, all allow for new and productive conversations with students. The same is true of communication among different professionals involved in the curriculum.

Principles-based models

Many universities use a set of principles to guide curriculum design. A few examples include the [University of Hertfordshire \(2023\)](#), [University of Liverpool \(2023\)](#) and [University of Portsmouth \(2018\)](#).

Designing for different modes of learning is compatible with a wide range of curriculum principles such as equity, diversity and inclusion, sustainability, digital capability, citizenship, student-centred learning and more. We have mapped our six pillars to some of these agendas in our **strategic lenses** and the same could be done for other principles identified at HE provider level or by a programme team. You'll find the strategic lenses in our forthcoming 'beyond blended' guide.



Potential benefits of this approach to design

Our phase one work highlighted the many frameworks, principles and processes in use for curriculum design in UK higher education. The approach we have outlined in this guide and its associated resources can be used alongside other frameworks, as shown on the previous pages.

Potential benefits of this new approach were highlighted in feedback from participants at the ten workshops we ran from March to July 2023, with access to resources from the project. They were:

1. Clear ways of identifying and discussing different modes, using a pedagogy-led vocabulary
2. Using the same vocabulary to bring pedagogic requirements into discussions about space design, facilities and room bookings, workload and workload modelling, assessment modelling and the development of the virtual estate
3. Centering design on time and space as finite resources to be allocated, while recognising that different allocations of time and space produce meaningful differences in how students learn and participate
4. Recognising the HE provider's role in providing physical spaces that meet the needs of educators and staff (for comfort, privacy and/or social connection, digital connection) even when they are online – an often overlooked factor in design
5. Recognising pace and presence as key to engagement, and focusing staff development on these issues
6. Recognising the equity, diversity and inclusion issues at work in designing for place and platform, time and pace
7. Recognising that, in practice, design and planning often start *after* sessions are allocated in the timetable. There is value in framing design conversations around the questions “what kind of session could this be (given the constraints of time, space and platform)?” and “what activities can happen in a session of this kind?”. There is also value in turning this conversation back onto timetabling and demanding sessions of an appropriate type and diversity to meet the ambitions of the curriculum
8. Seeing the potential to explore new session types, for example making use of immersive, augmented and virtual reality or collaborative platforms. These should be set alongside more familiar sessions so they can each be appraised in educational terms, rather than seeing either familiarity or innovation as positive in themselves

9. Beginning to address the engagement issue; a key concern across our workshops. This approach allows 'engagement' to be understood differently in different modes, while always explaining the educational value of each session: of cohort-working versus independent study; responsiveness versus reflectiveness, presence and collaboration versus self-paced learning
10. Highlighting the benefits of teaching teams being able to mix up session types and even to make late changes to session formats in response to student needs. It is then an organisational question how much flexibility can be built into the curriculum design process, allowing for a longer life-cycle of curriculum review



Moving forward

In this guide we provide a starting point for conversations among curriculum stakeholders about the different ways learning can be supported across time, place and platform. Using shared terms and resources makes it easier for curriculum teams to work with organisational processes such as timetabling, space design and platform integration.

In autumn 2023 we're making a range of more detailed resources available to support these conversations in practice. A series of strategic 'lenses' on the six pillars provides practical questions for taking curriculum transformation forward. Further curriculum planning materials will include lenses on specific curriculum issues, infographics, planning tools and posters for use with students and other stakeholders.

Curriculum design is a key enabler of organisational change. The outcomes of this project have been mapped to Jisc's [framework for digital transformation in higher education](#), (2023) and the project team continues to work with Jisc partners and our advisory group to create practical resources with a focus on educational value and student engagement.



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Further supporting resources from Jisc

Framework for digital transformation in higher education

<https://ji.sc/digitaltransformationframework>

A new framework to for senior leaders, managers and change agents with responsibility for supporting digital transformation.

Digital strategies in UK higher education: making digital mainstream

<https://ji.sc/make-digital-mainstream>

A snapshot of how UK universities are articulating their digital strategies.

Approaches to curriculum and learning design across UK higher education

<https://ji.sc/HE-learning-report>

Looking beyond the emergency responses to lockdowns and restrictions – are we delivering learning in flexible and accessible ways?

International students' digital experience phase one: a review of policy, academic literature and views from UK higher education

<https://ji.sc/international-students-digital-experience>

An opportunity to view the international student experience through a digital lens, highlighting alternative perspectives and considering issues that might affect the digital experience of international students.

Building digital capability

https://ji.sc/build_digital-capability

Support your staff and students with the development of their digital capabilities.

Digital experience insights

<https://digitalinsights.jisc.ac.uk/>

Surveys providing powerful data on how your students and staff are using the technology you offer, what is making a difference and where improvements can be made.

Digital leaders programme

<https://ji.sc/digitalleaders>

Develop the skills to become a digitally-informed and empowered leader.

Let's work together to support your digital transformation



Contact your relationship manager:
ji.sc/contact-relationship-manager

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