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Learning and teaching space in higher education



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INTELLECTUAL OUTPUT 2

Case Studies of Experience: designing and developing learning spaces in higher education in the United Kingdom

The Case of Birmingham City University

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Executive Summary

This report outlines in detail the findings of the case study of experience at Birmingham City University of designing and developing learning and teaching spaces. This is part of Intellectual Output 2 of the Erasmus+ *Learning and Teaching Spaces in Higher Education* (LTSHE) project. Output 2 is entitled: *Case Studies of experience: designing and developing learning spaces in higher education*. The Output forms an essential theoretical base on which to build the two following intellectual outputs of the LTSHE project.

Birmingham City University is an interesting case study because it combines significant new-building with refurbishment of older and historic buildings. It is interesting because the University has developed a reputation for some significant innovations in learning and teaching.

As an institutional case study of Birmingham City University, this report focuses on the institution and uses material primarily from the institution. As such, it uses available institutional documents and material about the institution, accompanied by data drawn from interviews and focus groups with staff and students at the University.

There has been value in conducting Output 2 because it highlights the work BCU has done in developing learning and teaching spaces and the context in which it has done so. BCU has spent a huge amount of money and time transforming its estate and its spaces. It has implemented a range of innovations, in particular the STEAMhouse project, which have potential for changing the way we see learning and teaching space. The STEAMhouse is an 'innovation centre', aimed at encouraging the collaboration of the arts, science, technology, engineering and maths (STEAM) sectors to address challenges facing contemporary society. It brings together academics and entrepreneurs across the West Midlands and beyond. Such innovations are valuable because they have developed from many years of experience and development.

BCU, like most other UK universities, has implemented a significant amount of new building and refurbishment. Key issues that face BCU, and other UK universities, are: the impact of the massification of the sector and the imposition of full tuition fees; the impact of the student experience and engagement agendas; how the university engages with external stakeholders and how it develops blended learning in the aftermath of the Covid-19 pandemic.

Interview and focus group participants were forthcoming about their experiences of learning and teaching space at the University. They were generally positive about the new spaces and looked forward to seeing how STEAMhouse developed. They largely described how space had become more flexible and adaptable but also highlighted some of the challenges of using space. In particular, students felt there was never enough space. Staff talked about the growing importance of specialist space. All

participants described significant impacts of the Covid-19 Pandemic. They all saw benefits as well as challenges arising from the shift to online spaces.

Birmingham City University has undergone a huge transformation in recent years. Physically, the University has moved from its long standing main campus to a new campus in the City Centre. The University has been in the unusual position of being able to build new buildings and design new spaces, while shifting from a more traditional model of space design to newer models in which space is flexible and adaptable. There has also been a movement towards designing more specialised spaces for practice-based disciplines. At the same time, there has been a movement towards greater integration of technology and use of the virtual learning environment. This has all been put under huge pressure by the Covid-19 Pandemic, which has ultimately prompted a rethinking of how we use space and 'what space is for'.

1. Introduction

This report outlines in detail the findings of the case study of experience at Birmingham City University of designing and developing learning and teaching spaces. This is part of Intellectual Output 2 of the Erasmus+ *Learning and Teaching Spaces in Higher Education* (LTSHE) project. Output 2 is entitled: *Case Studies of experience: designing and developing learning spaces in higher education*. The Output forms an essential theoretical base on which to build the two following intellectual outputs of the LTSHE project.

1.1 Aims and objectives of Intellectual Output 2 of the LTSHE project

This output will be a report from each partner on their chosen case study and a summary report drawing out the key learning points from the partnership. The reports will explore the experience of designing and developing learning and teaching spaces within individual universities. Output 2 highlights examples of practice that indicate attitudes and approaches to learning and teaching space.

Output 2 highlights stakeholders' perspectives on such spaces. Output 2 is an essential second step in informing the development of any principles in design of learning and teaching space. It is innovative because it provides insights into individual institutions and their approaches to the design of learning space, their challenges and assumptions and will allow an exploration of the interplay between policy, practice, assumptions and attitudes to learning and teaching, and the specific contexts of inclusion and exclusion.

Output 2 is important as it informs the next stages of the project, including the design principles. In addition, it will have wider impact because it will share practice with the wider sector as a whole. It will help other institutions to explore their own experience through reflection.

Whilst individual case studies may not be directly transferable, although individual experiences may be recognisable to other institutions, the summary of the case studies will highlight commonalities and differences between the institutions.

1.2 Why Birmingham City University is interesting

Birmingham City University is an interesting case study because it combines significant new-building with refurbishment of older and historic buildings. It is interesting because the University has developed a reputation for some significant innovations in learning and teaching. It is also interesting because the institution is a significant part of the fabric of the city of Birmingham and, since 2010 has become a fundamental part of the redevelopment and regeneration of the city in a way that, perhaps, was unintended. In particular, the University has come to dominate the so-called Eastside

district of the city, an area intended by the City Council's 2010 Big City Plan for redeveloping the city, as a new area of mixed development (Birmingham City Council, 2011). The mixed development has not materialised but has provided the University with valuable space for expansion. At the same time, the new high speed rail link from London (HS2) is being built on the neighbouring Curzon Street Station site. Also adjacent to Eastside is the Digbeth district of the city, one of significant artistic and cultural vibrancy.

1.3 Challenges and value of conducting Output 2

There were challenges conducting Output 2. In particular, the onset of the Covid-19 pandemic was hugely influential both in affecting what we hoped to do in the study and in influencing the future of space. The pandemic prevented us from engaging with physical space as most activities went online. In many ways, we experienced a virtual higher education.

There has, however, been value in conducting Output 2 because it highlights the work BCU has done in developing learning and teaching spaces and the context in which it has done so. BCU has spent a huge amount of money and time transforming its estate and its spaces. It has implemented a range of innovations, in particular the STEAMhouse project, which have potential for changing the way we see learning and teaching space. The STEAMhouse is an 'innovation centre', aimed at encouraging the collaboration of the arts, science, technology, engineering and maths (STEAM) sectors to address challenges facing contemporary society. It brings together academics and entrepreneurs across the West Midlands and beyond. However, they are valuable because they have developed from many years of experience and development.

2. Theoretical issues

2.1 Literature supporting the development of new learning spaces

The development of university spaces has never been done in a vacuum. Developments have generally been undertaken on philosophical principles and the origins can be identified in existing, influential literature. Much of the current development at Birmingham City University fits models and approaches that are highlighted in the growing literature on learning and teaching space, as identified in Output 1 of this project. Notions of the learning commons are present within certain areas within Birmingham City University; the move towards flexibility in the use of space and the transformation of library spaces are three broad issues that we have highlighted in Output 1. What is less certain is how far the University has been driven by specific published literature or rather fits within a broader trend.

More often, however, development occurs on the basis of learning from each other through example. Within the UK, university staff simply visit each other because the country is not so big as to preclude people moving around; at the same time, colleagues move jobs and bring ideas from one institution to another. There is less international movement, inevitably, but colleagues still visit institutions in other countries and bring home new ideas. Birmingham City University has for example, connections with universities such as Missouri State University in the US. In many cases, there are institutional links, such as formalised partnerships, between institutions in different countries and ideas are shared between them.

2.2 Literature to contextualise the development of new space

Much of the new learning and teaching space at BCU, it seems from conversations and interviews with colleagues, is developed as a result of a wide range of influences. The notion of 'bringing space up-to-date' is one that is based on being aware of practice and of literature in the field, which is both pedagogical research and case studies of practice, along with influence of government and sector changes. At BCU, the impression given by colleagues is primarily of a situation in which individuals see innovations in practice and implement them in BCU.

Implementation of new or innovative space at BCU seems largely to have been the result of colleagues seeing similar approaches being taken in other institutions and suggesting that they implement similar facilities at BCU. However, as noted in the O1 report, many of these innovations have a literature about them. Most notably, the notion of the HIVE (Highly Interactive Virtual Environments) has a small literature about it and it highlights several different facilities. This case study fits firmly within the context of the O1 report and the issues highlighted.

2.3 Key issues relating to learning and teaching space

BCU, like most other UK universities, has implemented a significant amount of new building and refurbishment. Key issues that face BCU, and all other UK universities, are: the impact of the massification of the sector and the imposition of full tuition fees; the impact of the student experience and engagement agendas; how the university engages with external stakeholders and how it develops blended learning in the aftermath of the Covid-19 pandemic.

2.3.1 *Massification/ tuition fees*

Birmingham City University, like other UK universities, has experienced changes and development as a result of the much discussed 'massification' of higher education. As with most other universities, this has resulted in a huge growth in student numbers at the University over recent decades. Today, we have almost 27,000 enrolled students, whereas in 2011/12, we had 19,613 (BCU, 2013). The University also charges its students full tuition fees of over £9,000 per year, which was an integral element of the massification of higher education policies undertaken from 1997 (Millard, 2020).

Massification has also implied expansion amongst different groups in society, particularly amongst people with no previous experience of higher education. This primarily implies people from lower socio-economic groups and people from more varied ethnic backgrounds. The University reflects the city of Birmingham itself with its diverse ethnic makeup. Fifty-four per cent of the University's students are from BME backgrounds (BCU, 2020).

However, massification also implies expansion of higher education to be more accepting of a more diverse range of entry qualifications. Diversity can also be seen in the nature of the students' qualifications. Whereas in other, older universities, students are selected in the basis of having achieved particularly high scores in 'A-levels', BCU selects on a wider range of qualifications.

2.3.2 *Student experience and engagement*

Much work has been done at the University over the last thirty years to improve aspects of the student experience. In the early 1990s, the institution was the only one to collect, routinely, data from a student experience survey to help management develop meaningful improvement strategies (Kane et al., 2008). The University has employed colleagues who have been leading proponents of different approaches to learning and teaching; the University has also hosted alternative approaches to student engagement, particularly the notion of the 'student as partner' rather than the common approach of 'student as customer' which underpins a great deal of work done by UK universities (Millard, 2020).

2.3.3 External engagement

The University is, like most UK universities, attempting to make its mark on the communities around them. In part this is expected of modern universities. They have all developed their own strategies to reach out to the diverse communities in which they are situated. BCU is making much of the idea that it is ‘the university *for* Birmingham’, with an special relationship with the city.

Birmingham City University’s (BCU) mission is to be the University ‘for’ Birmingham, through facilitating growth, innovation and productivity in the local economy. This is achieved, in part, through collaborations with businesses, organisations and innovators on commercial projects, research and development opportunities, training and knowledge exchange. We also nurture highly talented and work-ready graduates with the skills and experience employers need. (<https://www.bcu.ac.uk/business>)

In particular, the University is making particular attempts to relate to the city’s ethnically diverse communities. This is achieved through engagement with particular districts of the city through projects funded as part of the Birmingham 2029 scheme, designed to map out the city over the course of the next decade. The scheme is stimulating bespoke applied research projects into the people and places of the UK’s second city to highlight and tackle the social issues facing Birmingham today.

2.3.4 Blended learning and the impact of the Covid-19 pandemic

As with all universities, BCU is learning from the rapid move to on-line teaching during the Covid-19 pandemic. Lessons have been learnt from the pandemic; progress towards more effective on-line teaching systems has been made. The University has developed a specific approach called ‘campus first’ which focuses on encouraging the implementation of essential activity on campus. This includes practice-based workshops and classes. However, delivery such as lectures are more likely to be presented on-line.

2.4 Levels of space management

The above highlights that the four main physical levels of space management discussed in Output 1 of this project (City/host community, campus, building and classroom) are taken into consideration in the development of learning and teaching space at Birmingham City University. However, there are a number of further specific points that need to be highlighted.

2.4.1 City/ Host community

As noted above, BCU is engaging with the wider community and communities of Birmingham. Physically, however, the University is an integral part of the city's 'Big City Plan', developing from 2010. The Eastside district is dominated by BCU buildings in a way that was not anticipated in the original Big City Plan, primarily because there was a lot of derelict space but developers were seemingly unwilling to invest in the area. For the University, however, it provided a valuable space for expansion in the midst of the city. The *Estates Strategy, 2015* notes (p. 2):

Above all the developments reinforce the University's position at the heart of the city, and give it exciting new possibilities for engagement with local and national business; with international and part-time students; and with other national and international stakeholders.

2.4.2 Campus

The most recent Estates strategy (2015) has focused on the consolidation of the University on two campuses with a relatively limited number of additional buildings, all of which are historic buildings. The Estates strategy talks of the 'realisation of the two-campus strategy' and the primary purposes of the strategy was stated as being to 'deliver a better balance of provision on two major sites... The closer spatial alignment of University-wide academic delivery and support units will assist us in achieving a much more integrated and efficient service to students, staff, and other local stakeholders.' This is an interesting and perhaps ironic perspective because the old North Campus, based in the Perry Barr district of Birmingham, was designed as a whole in the 1970s. Individual buildings were designed to form part of an integral whole and were intended to bring the Polytechnic together on a single campus, but ultimately failed to do so as the institution maintained a vast array of different buildings and campuses across the city¹. The 2015 Estates Strategy may, in fact, be seen as part of a wider historical development of the institution. However, it may also be part of the institutional management to help bring a sense of identity to the institution, which, more than any other university in Birmingham, has developed from very many different distinct institutions, each with their own identity.

2.4.3 Building

The University owns and maintains a huge range of buildings, each of which has its own identity. Several buildings are of historic value and are important to the wider heritage of Birmingham (see below 4.2.5). The buildings of the old North Campus in Perry Barr, now cleared away and being developed as part of the 2022 Commonwealth

¹ City of Birmingham Polytechnic: Governing Body Meetings. Session 1970-71. This provides a remarkably uninspired plan of the new Polytechnic campus.

Games re-development, were not intended with a distinct identity. The University has been in the fortunate position in recent years of being able to build anew on the two new campus sites and have invested in several new 'flagship' buildings on the City Centre and City South campuses, along with several older buildings that have been refurbished. Hence, the Curzon, Parkside and Millennium Point buildings are prominent when viewed from the rail entry to Birmingham when approached from London. These are also adjacent to the new station of the HS2 highspeed railway connecting Birmingham with London so have potential to be in a yet more prominent position.



Plate 1: View of Curzon and Parkside Buildings, City Centre Campus, BCU

On the other side of the City Centre campus, the University has built a new home for the Royal Birmingham Conservatoire, also intended as an 'iconic' building in which the Conservatoire holds not only its teaching but also high-profile concerts.



Plate 2: View of the new Royal Birmingham Conservatoire building, Jennens Street

2.4.4 Classroom

The lowest level of space may be referred to generally as 'classroom' but in the case of Birmingham City University, as with many UK universities highlighted in the O1 report, space includes more than lecture theatres and classrooms. Learning space can be

concentrated in facilities such as the University libraries and in foyers and other open spaces. In addition, the University has invested in specialised teaching facilities such as the Law School's 'Moot Court', the 'Green Room' in the Parkside Building which simulates a film studio, workshops for practice based programmes such as art and pottery and hospital-style settings for health care students.



Plate 3: Moot Court, BCU Law School



Plate 4: the Green Room, Parkside Building

2.5 Cross-cutting areas

Several cross-cutting areas have an impact on discussions about learning and teaching space in UK higher education and have an effect on strategies and development at

Birmingham City University. Political debates on higher education and its role, debates on learning and teaching strategies, quality assurance processes and requirements, along with stakeholder engagement and the impact of digital technology all have an important influence on the evolution of learning and teaching spaces at Birmingham City University and how we perceive them.

2.5.1 Political debates over higher education and its provision

The major underpinning policy document is *Putting Students at the Heart of the System* (Department of Business, Innovation and Skills (BIS), 2011), which has been highly influential on the sector as it introduced the notion of charging students full-cost tuition fees. This has remained the fundamental basis of funding for higher education since then and has had huge implications for the sector and for individual institutions.

BCU Estates Strategy, 2015 (p.3) highlights six 'planning assumptions' in developing the strategy:

1. The national context of higher education will continue to be one of greater concentration of resource;
2. National (UK/EU) student numbers will not increase significantly in the foreseeable future.
3. Research funding, and research student numbers, will be increasingly concentrated in fewer institutions;
4. There will be greater pressure on universities to engage with business and their communities;
5. There will be increasing stratification of the sector as the wealth gap between research-intensive and 'teaching-led' institutions widens;
6. There will be no significant increase in overall student numbers at the University through to 2020 other than in international students (but there might be some rebalancing of provision as demand changes).

Several of these were accurate predictions, especially relating to growth in competition for resources and engagement with internal and external communities. However, of particular concern to this project on space, student numbers in fact increased significantly, despite the huge growth in tuition fees and this led to challenges in finding space for them all.

2.5.2 Debates on innovative learning and teaching methodologies

As across the sector, there has been huge development in learning and teaching pedagogies and it would be impossible to cover the literature in this field here. In general, there have been important shifts in emphasis which are important to highlight. The Quality Assurance Agency highlights the value of ‘co-creation’ where students and other stakeholders are engaged in the development of a more effective and engaging curriculum (QAA, 2018, p. 6): ‘The involvement of students in the design and delivery of learning and teaching activities, and of other stakeholders where appropriate, is conducive to establishing their appropriateness, relevance and value’. There has, second, been a move away from lecture-based teaching in recent years, although there has been some controversy in this area (Young, 2021) towards collaborative classroom based study.

This has necessarily been the case in several practice-based disciplines at the University. Training has become more focused on working in realistic settings and lectures have little relevance to those settings. Hence, the University has invested in recent years in spaces which reflect the work place, whether it is a setting such as the Law School Moot Court, the Business School ‘trading room’ or the paramedic room in the Health School.

The development of new spaces at the University has tended towards group-work. The design of the new central university Library, like many others, has been to break down barriers rather than to continue using traditional concepts of library working spaces.

2.5.3 Quality assurance of learning and teaching and the relevance of spaces

There appears to be no specific concern with buildings or the layout and nature of learning and teaching space within the context of quality assurance. Quality assurance is primarily concerned with space where it relates to appropriate facilities for learning and teaching to fulfil programme requirements. The University’s ‘Principles governing the provision of programmes of study’ includes an interesting section (A3) on ‘the students’ environment’:

The University and any body offering an approved programme of the University must be able to provide the student with proper academic supervision and appropriate learning experiences. Students should be provided, also, with adequate learning resources and appropriate support services; opportunities to contribute in an informed way to programme development and quality assurance; and an atmosphere in which rational debate is encouraged. Each Faculty of the University is required to adhere to the University’s Equal Opportunities Policy Statement. Students’ feedback on the nature of their

educational experience should be actively encouraged and acted upon.
(Birmingham City University, 2013, p. A2)

There is no specific mention of spaces: the students' environment is clearly a notion rather than special. However, it is arguable that 'adequate learning resources' and 'an atmosphere in which rational debate is encouraged' both cover the physical spaces in which learning and teaching is undertaken. 'Learning resources' can easily be viewed as including classrooms, work space and digital facilities within class or as part of work stations. 'An atmosphere' may also include the physical setting that encourages 'rational debate'. In this case, the design of furniture and the layout of rooms is important to providing such an atmosphere.

2.5.4 Learning and teaching management and the integration of different actors in this process

Despite examples of collaboration at other UK institutions (as highlighted in the UK O1 report), learning and teaching space does not appear, overall, to have been designed as a result of collaboration between students, lecturers and designers. Indeed, in a focus group held with academic staff in the School of Law, concerns were raised that the building and further 'improvements' were all designed without any reference to the academics teaching within them. The teaching space appears, then, to be still driven by management, designers and architects.

At the same time, there is a certain amount of re-purposing, even while new buildings are being constructed, which can make collaboration between different stakeholders challenging. There have been rumours, for example, that the Curzon A building was designed for a health faculty rather than being, as it is today, the home of the Faculty of Business, Law and Social Sciences. Whether this was true, it highlights a more general issue. In part, such situations have arisen because faculty structures have changed and developed significantly over the years². Buildings might be designed for one purpose but as the occupants change, the environment is re-purposed. Interestingly, the one building that has largely remained the same since its construction is the Margaret Street School of Art building: this was purpose-built for teaching art and as such the space has proved difficult to re-purpose!

2.5.5 Digital structures in universities

Here, it is important to explore the digital structures used by Birmingham City University in relation to those in other institutions. This includes research on how

² The Faculty of Business, Law and Social Sciences has now existed since 2015: before that, the Business School was a separate faculty (as it had been since 1987) and the schools of Law and Social Sciences were placed with the School of Education – itself a separate Faculty since 1987. In 2015, Education was paired with the former Faculty of Health.

universities use virtual learning environments. Planning and creation of physical and virtual learning and teaching space, exploring the relationship and blending of the two and the development of hybrid structures.

As in other universities across the UK, there has been huge development in digital structures at Birmingham City University. This has been ongoing for decades, although, as elsewhere, the Covid pandemic has forced huge and rapid development. Jisc (2016) highlighted the wide use of virtual learning environments and the various approaches that institutions take to developing them. They have benefits 'as a means to structure, manage and deliver learning activities and content' (Jisc, 2016). The general application of VLEs appears to have been accepted uncritically by institutions but there is evidence that the facilities are not viewed as wholly positive by students themselves. Hamutoglu et al. (2020) found that students were using the Middlesex University VLE in a variety of ways but were not really engaging with the social networking element, tending to predominantly use the lecture capture facility.

BCU's virtual learning environment (VLE) has developed significantly over the last decade. The chosen platform, Moodle, seems to be widely accepted by staff and students. The way in which it is used by staff varies, with some using it simply as a storage system whilst others use it more smartly, reflecting Jisc's (2016) guide. There have been tentative experiments in the use of 'flipped' classes (in which information is provided online and classroom time is devoted to discussion and engagement with that information) and integrated technology in learning and teaching spaces. Most of the classrooms and lecture theatres in the new buildings were provided with integrated IT technology before the pandemic in 2020; rooms such as the Hive were built in 2017 with highly integrated technology.

As a result of the pandemic, the University, like others, was forced to provide an effective online learning space in a very rapid timescale. MS Teams was the chosen platform and this has been the standard since then. Prior to the pandemic, different video-conferencing platforms were experimented with but with varying degrees of success. With the return to campus, both MS Teams and live teaching sessions run concurrently. The big question is whether it will be practicable to continue to provide concurrent online and live lectures or whether the chosen method will be to provide a recording of lectures for students who were unable to attend or for students to remind themselves of what took place.

3. Methodology

As an institutional case study of Birmingham City University, this report focuses on the institution and uses material primarily from the institution. As such, it uses available institutional documents and material about the institution, accompanied by data drawn from interviews and focus groups with staff and students at the University.

3.1 Document analysis

Institutional data includes strategy documents and other institutional information about learning and teaching space/pedagogical practice. Strategy documents viewed included the learning and teaching enhancement strategy, recent University estates strategies and quality assurance principles. Much was available on the University's SharePoint. In addition, we used material from the University's website and documents produced by architects working on projects commissioned by the University.

A wide range of search terms were used to identify and analyse documentary evidence. We used terms such as 'learning and teaching strategy', 'classroom', 'VLE'.

3.2 Interviews and focus groups

We conducted interviews and focus groups with different stakeholders within Birmingham City University. We communicated with different types of stakeholders, namely, staff within the vice chancellor's office, faculty deans, lecturers, students and estates staff in order to explore different perceptions on existing and future learning and teaching space, including their features and the way they promote the quality improvement of learning and teaching.

All interview and focus group data was recorded and treated confidentially. Data was analysed using the standard approach of reading through all data vertically and then thematising the material.

There were challenges in collecting interview and focus group data. In particular, we were circumscribed by the Covid-19 pandemic: we could only undertake interviews and focus groups on-line (with one interview held in-person) as this was the safest approach and one that was approved by the Faculty Research Ethics Committee. It was also remarkably difficult to encourage students to take part in the focus groups. Staff were engaged with through personal interviews rather than using focus groups as their time was limited and it was difficult to arrange a suitable common time.

4. Institutional policy and practice for the design and implementation of Learning and Teaching space

This section provides information from key institutional documents from Birmingham City University as well as an account of the spaces at the University that can be considered as new (or innovative) learning spaces. Hence, the section is organised in three subsections, one which looks at policy and strategy for the development of learning and teaching space, another which looks at the development of new learning spaces and the role spaces have in improving the quality of learning and teaching and a third which looks specifically at innovative spaces.

4.1 Policy and strategy for the design and implementation of learning and teaching spaces

In this subsection we will provide results from the analysis of the institutional documents with respect to what they are saying about the following issues always with a broad focus on the design and implementation of learning and teaching space at Birmingham City University.

4.1.1 *Learning and teaching processes*

Learning and teaching strategy has developed over many years at Birmingham City University, with changing and evolving approaches to didactics, pedagogy and curriculum design. Policy has adapted and changed, in many cases with contemporary trends and in some cases as a result of local innovation. In particular, the University has been a 'teaching focused' institution since the early 1990s. The then vice chancellor decided that BCU (then the University of Central England) should focus on teaching rather than research, which was fairly unusual as universities, both pre- and post-1992 institutions began to focus a significant amount of their resources on research.

The University's Teaching & Learning Enhancement Strategy (2020), claims (p. 1) to align with the central pillars of the wider University Strategy 2025 of 'academic excellence', 'people' and 'partnerships'. The Strategy also builds upon the Transforming The Curriculum (TTC) programme of work which is now fully embedded across the University's teaching. The Learning and Teaching Enhancement Strategy informs four key measures of success: Academic Quality, that is that learning and teaching conforms to accepted internal and national standards; the University's STEAM agenda, which aims to bring together science, technology and maths disciplines with the arts; Student Experience and Graduate Outcomes.

The Birmingham City University Strategy 2025 primarily 'articulates a vision of a course portfolio which anticipates the future, informed and delivered by expert educators

within a personalised and flexible curriculum'. Strategy 2025 identifies environmental sustainability as a core priority and our curriculum plays a vital part in ensuring we work with our students to create sustainable futures. Undergraduates, postgraduates and doctoral learners all benefit from the strategic vision for teaching and learning enhancement.

BCU has a strength in the diversity of its learner population, fully articulating its position as the University for Birmingham. At the core of the Teaching & Learning Enhancement Strategy is the recognition that our curriculum, and wider offer, has to overtly recognise the myriad facets of an inclusive and sustainable curriculum and outcome-based approach. Aligned with the need to deliver a curriculum which supports Access and Participation Plan targets is the recognition that learner expectation is one of personalisation, student-centred, diverse consumption models and multiple entry/exit points.

4.1.2 Policy for learning and teaching space

There is a broader strategy for developing the University's spaces. The Birmingham City University Estates Strategy, 2015 (p. 2), outlines broad principles for the university after its move from the North campus. The University's vision for its campus development, which emerged primarily because the University was leaving the North Campus (formerly its principal campus and site of the University's management), was that it should:

1. raise the profile of the University;
2. improve student experience;
3. develop a better teaching and learning environment;
4. remove organisational barriers between departments and faculties;
5. provide a sense of home for students;
6. embrace new technologies;
7. embrace new ways of teaching and learning;
8. provide flexibility within the spatial planning;
9. increase revenues and decrease costs;
10. be a quality group of buildings that showcases the University's excellence;
11. be a flagship campus with high levels of accessibility;
12. be an exemplar of best practice;
13. be sustainable in terms of design, specification, construction and in occupation;
14. adopt innovative technologies;
15. decrease running costs.

These points are interlinked and are important to our consideration of learning and teaching space at the University. Point 3, 'to develop a better teaching and learning environment', is firmly rooted in the context of the other points. They highlight flexibility, adaptability and accessibility, breaking down traditional barriers between

different parts of the University, integrating technology, reducing running costs (increasing sustainability) and raising the profile of the University.

The Strategy is placed firmly in the context of ‘rapid changes in the higher education environment’ since the early 2000s and the concern that ‘the sector has had to display remarkable agility in responding to the challenges, being innovative, being more business-led’ and making more of limited resources. The strategy highlighted that the University management team was concerned, in the context of increasing competition, ‘that we do whatever we can to design into the new estate as much flexibility as possible, within cost constraints, to allow us to respond rapidly to new challenges and demands as they emerge.’

The Estates Strategy, 2015 contains a set of ‘development principles’ (p. 4) which are instructive. Of particular note is that there is a link made between what goes on in the University environment (i.e. academic activity) and the spaces in which they take place:

A review of the University’s academic portfolio has already commenced, which will inevitably lead to changes in course content and structure, the possible disappearance of some areas of academic activity, and the introduction of others. Ongoing national restrictions on student numbers must not lead to complacency and ossification of the academic content: on the contrary it should drive us to innovate more, and more rapidly, as we seek to maintain our share of a potentially fixed (in terms of UK/EU numbers) yet highly competitive student market. We cannot therefore simply design a 2017 estate to replicate a 2012 academic configuration and set of operational and management behaviours. Flexibility must – to the extent permitted by cost and physical constraints – be inbuilt.

The focus here, of course, is flexibility and adaptability of the University spaces rather than a concern with specific activities that go on. However, it is important that the link is made. ‘The new estate must have the inbuilt flexibility to cope with these changes, and to enable the delivery of a transformational agenda in all areas of University operations.’

The Strategy is concerned with bringing together academic activities rather than splitting them up:

The co-location of academic delivery and support services which the two-campus strategy gives us will allow us to be more business- and city-facing; to develop more research space for students, visiting scholars, and our own staff; and have in close proximity group, individual, formal and informal learning and teaching spaces. The student experience will be significantly enhanced by developing a seamless set of support systems and operations.

Arguably, this reminds us of discussions some years ago of developing the ‘one-stop-shop’ of services for students. Spaces in this context are open, with fewer individual ‘offices’, an approach that has been seen in other institutions.

4.1.3 Preparing didactics, pedagogy and curriculum development for blended learning and teaching

According to the BCU Learning and Teaching Enhancement Strategy, ‘an inclusive curriculum and wider support, should ensure students are connected to their learning and enable students to see themselves, and their backgrounds within the curriculum to ensure accessibility to institutional norms and cultures.’

4.2 The development of new learning spaces and the role spaces have in improving the quality of learning and teaching

In this section, we explore the development of new learning spaces and the role spaces have in improving the quality of learning and teaching. This will include cross-cutting issues such as implications of massification, social inclusion, accessibility, internationalisation, sustainability, monument and asset protection.

4.2.1 Implications of massification of higher education; social inclusion

Since the 1990s, higher education has become ‘massified’. The principal implication of this has been the huge and growing numbers of students at higher education institutions in the UK. Despite the growth in tuition fees, the numbers have continued to grow in recent years. Birmingham City University, rather than declining in numbers, as the management believed would happen as a result of increased tuition fees, has in fact grown and has now reached 27, 000 students. This has had a huge impact on the simple need for space.

However, there is a great deal more to this than numbers. Higher education has also expanded to a wider section of society in the UK. The Labour governments of the 1990s and 2000s set a goal of 50% participation and even if it has not reached this, young people from a wider range of backgrounds now attend university than even 30 years ago. Along with this has come a growing diversity of participation in higher education, particularly in the ethnic and cultural makeup of the student body. At BCU, this is particularly notable as a university that appeals to residents of the city and the region. BCU is popular amongst ethnic minority residents of the city as it is local and has built up a reputation amongst local families. At the same time, the University is more geared to local needs than more established institutions.

4.2.2 Accessibility

Accessibility is an underlying concern for BCU as for all UK universities. Accessibility is a wide ranging theme and engages not only legal requirements such as disabled access to spaces but also the wider challenges of encouraging students from all backgrounds to make use of and stay in a space.

All universities in the UK have over recent decades, been forced to reassess accessibility of their spaces for disabled students. As well as a re-thinking of a moral duty to enable disabled students to use spaces that are open to others, this is also a legal requirement. Accessibility built in to new buildings and older spaces are adapted appropriately. Such adaptations include ramps to get into buildings and escalators. In addition, the trend for larger, open and adaptable spaces is perhaps more helpful in this respect. At the same time, larger, shared rooms come with challenges for people with hearing disabilities. Noisier spaces are more problematic in this regard.

Accessibility is not only about being able to get in and use a space. Some of the literature in Output 1 highlights that many students prefer warm, welcoming and comfortable spaces. The idea of the 'sticky campus' is in part about accessibility in the sense that students are attracted to stay on campus. BCU, as many other universities, has redesigned rooms to be welcoming, warm and comfortable spaces. Hard chairs are replaced by softer swivel chairs on rollers that can be moved around. Armchairs have replaced harder chairs in open waiting areas. Work tables no longer conform to standard square or rectangular shapes but are provided in organic shapes that are more comfortable to sit around. The use of warmer colours both in the furniture and on walls is increasingly common.

Accessibility is also mediated by culture and background. Traditional university formats may not be appropriate or engaging for students from non-traditional backgrounds. Standard classrooms, lecture theatres and offices are changing as students arrive with different experiences and expectations of higher education. Standard formats tended to focus on the 'delivery' of lectures and classes rather than on collaborative working amongst students and lecturers. At the same time, however, classrooms that encourage collaborative working may be challenging for groups unused to mixing.

4.2.3 Internationalisation

Making spaces that are appropriate for international students as well as home students is also a challenge. There is some literature that highlights the difficulties international students can have with non-traditional styles of classroom and lecture theatres.

4.2.4 Safety

The University balances innovative approaches to its use of space with safety requirements. In the 2000s, the then vice chancellor had an ‘open door’ policy. He argued that people often came through university sites and were inspired to take up higher study. Unfortunately, an open-door policy led to serious security issues. Currently, security is tight on all the University buildings and passes are required to enter.

4.2.5 Monument and asset protection

Birmingham City University owns several buildings that are important parts of Birmingham’s heritage. The Margaret Street Art School in Birmingham city centre is one of the best known of the University’s possessions. This architectural gem, designed by the architect J.H. Chamberlain and completed in 1885, is one of the finest buildings in central Birmingham. It was built as the Municipal School of Art and eventually became a constituent part of the Polytechnic in 1971 (Swift, 1995).



Plate 6: The Margaret Street School of Art building

The University undertook a huge restoration of the building in 1995 and is limited in what can be adapted and changed by the internal structures.

The University also owns the School of Jewellery on Vittoria Street in the Jewellery Quarter of the City, another building that is important as part of the city's architectural heritage (Foster, 2007). The building was originally a jewellery factory and the Birmingham Jewellery and Silversmiths Association created an exclusive school for the jewellery making industry there in 1890. Since 2014, the School has been part of the Faculty of Art, Design and Media. The building has recently been restored at great cost to the University. The School of Jewellery houses traditional style workshops and exhibition spaces.



Plate 7: The Vittoria Street School of Jewellery

The Bournville Day Continuation College building, which for many years was used as one of the University's Art College sites, is now the home of Birmingham City University International College (BCUIC), an affiliate college of the University that provides programmes for international students.



Plate 8: The Bournville Day Continuation College, now BCUIC

The building is significant as part of the University's heritage because it is one of the few Day Continuation College buildings still in existence. Such colleges were created by more enlightened factory owners to provide further education for workers aged between 14 and 18. The Bournville college was created by Cadbury's, and all 14-18 year olds who worked for the company were required to attend the college for a few hours each day (Geffen, 2019). This is symbolically important because the University's history is rooted in this sort of educational endeavour.

4.2.6 Sustainability

More recently, strategies highlight that space should be environmentally sustainable, which has implications for viewing space as flexible and adaptable to changing needs and situations.

The Estates Strategy, 2015 (p.2) notes:

The realisation of our two-campus strategy will deliver more intensive use of space to increase efficiency and drive down operating cost. Our overriding aim is to create campuses which are responsive to changing needs, and which are as 'future-proof' as possible through flexible use of space. The co-location of professional services and academic teaching and learning space will optimise resource utilisation and improve service delivery.

The Strategy also highlights a concern for getting the most out of existing resources:

Specialist teaching spaces are allocated to the Faculty who provide investment and resource to get maximum benefit for the specialist courses. Specialist spaces are equipped with specialist equipment and furniture relevant to the subject group and normally managed by a faculty technician, contains uses that require Health & Safety risk assessments and inductions/training. Spaces such as, studios, workshops and laboratories are considered specialist.

4.2.7 Quality assurance processes

Space seldom if ever appears in discussions about quality assurance. In general, we may assume that space is covered in the short statement in the discussion of Faculty Learning, Teaching, Assessment and Quality Committees in the BCU Academic Governance, Constitution (p. 1):

Each Faculty is required to operate a Faculty Learning, Teaching, Assessment and Quality Committee. Learning and Teaching refers to the *process of delivering the curriculum successfully* to BCU students [my italics].

The use of space is largely seen as a University-wide issue and part of the effective working of the University as a whole and it is, in theory, supposed to be managed

centrally to ensure efficient use. The University's *Space Management - Operating Principles and Guidelines* notes that 'Space is a central University resource to be allocated appropriately, supporting and enabling University growth plans' (p. 1). The guidelines stress the importance of timetabling to use of space: 'The University is developing an academic timetabling system [to be considered in parallel to the new timetabling policy]. All space requiring timetabling and / or room booking must use this system' (p. 1).

The guidelines also note that the provision of sufficient high-quality centrally allocated teaching space is a key priority:

All general-purpose space including lecture theatres, general classrooms, meeting rooms, seminar rooms and the like are a central resource to be allocated as available through the timetabling team. Any exceptions to this must be agreed by the Space Management Group. General teaching and tutorial space will be calculated using the University's 'Teaching Space Model'.
(p. 2)

4.1.5 Digitalisation in the institution - the use and implementation of online resources for learning and teaching

This section explores the importance and status of digital structures, including which organisational units, committees, member groups, individual stakeholders are engaged, relevant and required. It also explores how digital structures are prepared for blended learning and teaching.

The BCU Learning and Teaching Enhancement Strategy, 2020, highlights the centrality of digital technology to learning and teaching when it refers to the 'Digitally-enabled curriculum'. The approach is also felt to be key to an inclusive approach when it suggests the University 'implement[s] an inclusive and future-facing curriculum which fulfils learner potential, recognising transition into, and through, the curriculum.'

Digital technology is at the heart of BCU's approach to learning and teaching strategy and space management. 'At the centre of our response is the transformative and enabling value of digital learning in recognising students' personalised accessibility in engaging with their learning environment.'

The BCU approach to digitally enabling its curriculum has four elements:

1. Development of a multi-modal digital approach of teaching and learning, ensuring learners have accessibility of subject materials and support personalised to their own 'pace and place'.

2. Embedding 'students as partners' curriculum projects to inform curriculum design ensuring that the University is responsive to the diversity of its students' educational foundations.
3. Embedding a learning analytics solution to inform curriculum and assessment policies, through identifying and mitigating practices in modules with diversity attainment gaps.
4. Ensuring that learning content, physical and virtual, aligns to the expectations of a diverse and inclusive curriculum.

4.3 Innovative learning and teaching spaces

In this subsection, we highlight new and innovative learning and teaching spaces at Birmingham City University. The subsection discusses the motives that led to their design and implementation and the team responsible for their implementation. The subsection discusses the characteristics of the spaces, including furniture, equipment, technologies and pedagogical models used. It also discusses the ways in which the spaces are used, by whom and with what results.

4.2.1 Flexible and adaptable space

A view of the new spaces at Birmingham City University highlights the huge range of new spaces in which to study. The following selection of views highlights the range and nature of many of the new spaces.

The following two photographs show open spaces intended as waiting and café areas with comfortable and welcoming furniture and environments.



Plate 9: Student Services waiting area, Curzon Building



Plate 10: View of café, Curzon Building

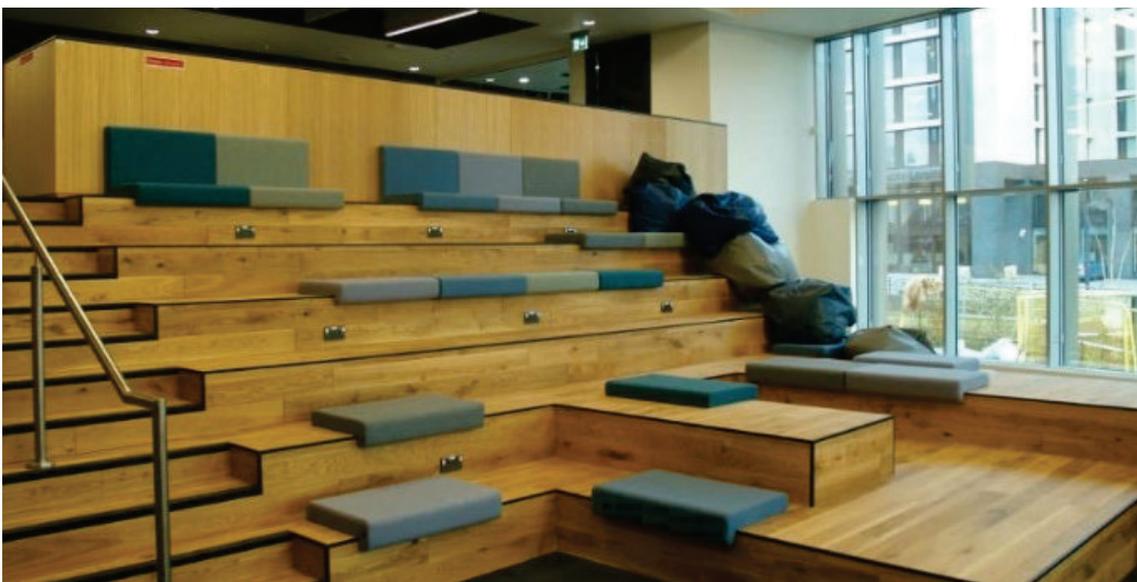


Plate 11: benches in Curzon Building

Plate 11 above shows the use of a large open space with a large window overlooking a canal the area provides space for relaxation and sociability.

The following photographs show examples of mixed working spaces, again in light, open spaces in the Curzon Building. There is a mixture of furniture and this includes more formal desk accommodation and comfortable armchairs. They also show comfortable and private spaces to the side, built into walls.



Plate 12: View of mixed working spaces, Curzon Building

Plate 13 below includes not only formal desk space but also a group of ‘pods’, comfortable, private spaces for group or private study.



Plate 13: View of mixed working spaces, Curzon Building

The University’s new classrooms are characterized by more ergonomic and appropriate furniture in classrooms that encourage working collaboratively between students and staff.



Plate 14: Classroom in Curzon Building

4.2.2 Library

The University's central library, based in the Curzon Building, is one of the new type of library highlighted by commentators such as Jolly et al. (2019). The photographs below highlight the use of large open spaces to create a more sociable learning space combined with smaller enclosed workrooms for privacy and quiet.



Plate 15: View of Library, Curzon Building

The library in the Millennium Point building, shown in plate 12 below, is older, but has made use of the space to create a more informal learning space with comfortable armchairs and decoration. The effect in both cases is to create a space that is very

different from a traditional library space. Combined with the image from the Parkside Building, the images highlight the use of a more comfortable, almost calming, approach to space.



Plate 16: Views of mixed working spaces – Library, Millennium Point (left); Parkside Building (right)

4.2.2 The Hive Theatre

The Hive Theatre, built within the Curzon B building, is ‘an innovative lecture theatre ... that features raked, group activity seating and integrated technology’ (BCU, 2022). It is, as highlighted in the photograph below, unusual in not having a dais to provide a focus on a key speaker. The space appears to be one that would encourage discussion and collaboration between students.



Plate 17: The HIVE Theatre, Curzon Building

The Hive Theatre, according to the architects, was designed with two goals in mind:

The first – to create a seminar space with a greater focus on student collaboration and participation. The second – to deliver more effective collaboration between research, education, and professional practice. A careful balance between audiovisual and acoustics expertise was needed to deliver the requirements of this unique space (Hoare Lea, no date).

The Hive Theatre is regarded by the architects as ‘an experimental learning space from the earliest design stages. The room is a unique in-the-round collaborative environment that promotes content sharing and student interaction’ (Hoare Lea, no date). From the photograph above, it is clear that the environment might encourage student collaboration and participation. It does not, however, show how the second goal, to ‘deliver more effective collaboration between research, education and practice’ could be encouraged particularly.

The theatre is clearly technologically innovative, although based on existing development already undertaken by the architects. The theatre ‘has a distinctive oval shape, with ultra-wide-format, curved presentation walls. Student seating is arranged in huddle group tables focused towards the centre of the room. Acoustics can be notoriously problematic in a circular space so, after conducting detailed Odeon and EASE modelling, we decided acoustic absorption materials could sit behind the projection screens. This mean the acoustic “flutter” and the effect of the curved walls was significantly reduced’ (Hoare Lea, no date).

The Hive Theatre is unusual in not having a centre stage on which lecturers deliver their presentation and was designed as an ‘unconventional, stimulating and progressive room format [to provide] students and teachers [with] new opportunities for focused group working, voting, content sharing and collaboration.’ In addition, ‘the AV systems we designed allow for a range of room modes, one of which is the immersive ‘open collaboration’ mode. Small groups can work together in responding to questions or tasks, and then present their content to the surrounding curved room displays’ (Hoare Lea, no date).

According to the architects, the Hive Theatre is unique and has provides an experimental space in which lecturers engage with students in a different way from traditional approaches. They claim that the space integrates technology to a degree that is unusual. (Hoare Lea, no date).

The architects felt that students and staff have been positive about the space and used it to good effect. They also claim that ‘the adoption has been amazing, with students and teaching faculty diving right into all the new functional possibilities and methods delivered by a very advanced AV system’ (Hoare Lea, no date).

4.2.3 *New Royal Birmingham Conservatoire building*

The new Royal Birmingham Conservatoire building, built to replace the outdated Adrian Boult Hall, was from the start regarded as an ‘iconic’ building for the City Centre. The new building opened in 2018.

According to the University’s website:

The new Conservatoire is a unique contemporary building, incorporating five public performance spaces including a 500-seat concert hall for orchestral training and performance, private rehearsal and practice rooms, and teaching spaces for musicians from a variety of disciplines. It also includes The Lab, a cutting edge, completely flexible black-box studio, and the first permanent jazz space in any UK conservatoire – the 80-seat Eastside Jazz Club (BCU, 2022a).

The new building clearly contains a wide array of top-of-the-range facilities to serve the music students who study at BCU. Some innovative space, such as the Lab, is highlighted.



Plate 18: Concert Hall of the new Royal Birmingham Conservatoire building

4.2.5 STEAMhouse

The STEAMhouse project has taken centre stage at the University in the last few years and has become a focus for much of the University's work, both as a new space with potential and as a model of how space might be used in the City in future. The new space is the culmination of a longer term project that attempts to encourage collaboration between science, technology, engineering and arts:

Birmingham City University's STEAMhouse is a unique centre dedicated to providing a space for collaboration, innovation and the development of new ideas, start-ups and ventures. The project is based on the concept of STEAM, which places the arts at the centre of traditional scientific subjects of Science, Technology, Engineering and Maths to increase innovation. (BCU,2022b)

The project has been developed to stimulate collaboration both within the academic community but also with external communities: 'STEAMhouse provides businesses with access to state-of-the-art facilities, packages of business support, and access to like-minded collaborators from the business, academic, creative and digital communities.' (BCU 2022b)

The most recent phase of the STEAMhouse project, which is nearly complete (2022), was to refurbish the old 'Belmont Works' factory on Cardigan Street, one of the only remaining 'heritage' buildings in the Eastside district, as the new home for the project.

The Belmont Works is 120 years old and is Grade A listed³ but has been derelict since 2007 after a disastrous fire. The refurbishment apparently cost £72 million and has transformed the building. The front of the building, as pictured above, comprises the original frontage of the Belmont Works. However, the back of the building is largely new, creating a large amount of additional space outside the confines of the original building.



Plate 19: Exterior of the new STEAMhouse building, Cardigan Street

The building is currently being furnished with a range of 'production equipment, technology expertise, masterclasses and workshops' with a view to helping businesses develop ideas to production. The hope, according to the University publicity, is to make the new space 'an ideal home for all innovators interested in a new collaborative community supporting new work, products and services.' (BCU, 2022b)

Currently, the new building is characterised by large, open spaces such as that pictured below. This, in the context of a similar trend across higher education in the UK, is to provide the most adaptable and flexible space within which different activities can take place.

³ This is the top level of state protection for heritage buildings.



Plate 20: Interior of the new STEAMhouse building, Cardigan Street

The new site is regarded by the University representatives as a vital element in the institution's external engagement with the wider business community in Birmingham. The website highlights that 'STEAMhouse has already provided support to an array of businesses from across the West Midlands from its first base in Digbeth, but will be able to assist even more from the Belmont Works site, which will span five floors with some of the latest technology and equipment.' (BCU, 2022b)

5. Perceptions on the design and implementation of Learning and Teaching space

In this section, we explore the perceptions of key stakeholders of learning and teaching spaces at Birmingham City University. This is important to give a perception of the strategies and approaches outlined in the previous sections. It is important because it provides a perception of the 'reality' on the ground: what works and what does not; why some people like some facilities and why others do not.

We undertook interviews with key stakeholders from the academic community from around the University and from support service staff. We interviewed representatives from the Vice Chancellor's Office, from faculty management, teaching staff; from the Education Development Service and from Estates. In addition, we undertook focus groups with users, notably students from various faculties and from teaching staff.

The underlying questions we asked of all participants were:

1. What are your perceptions of existing learning and teaching spaces, including virtual spaces?
2. What do you feel could be improved?

We explored four broad issues with participants. First, we explored participants' perceptions of the role of physical learning and teaching spaces in supporting and/or promoting new approaches to learning and teaching. Second, we asked participants to identify existing physical learning and teaching spaces and explored their relevance and usefulness for the development of an adequate and quality learning and teaching process. Third, we asked participants to identify new and innovative learning and teaching spaces that have been developed at the University and what learning and teaching spaces it still needs. An important element of this was also identifying the key stakeholders in such new space. Finally, we explored participants' perceptions about what digital structures are needed for blended learning and teaching.

5.1 Role of physical learning and teaching spaces in supporting/ promoting new approaches to learning and teaching

Participants generally felt that space is a vital element in the learning and teaching experience of students and lecturers. They all reflected on how learning and teaching interacted with the space in which it took place and generally felt that traditional classrooms and lecture theatres were, at best, limited in their usefulness.

5.1.1 *Diverse learning styles*

The following perceptions are useful in understanding some of the different aspects to this issue. The Education lecturer was convinced that 'learning can take place anywhere' that the students and staff felt comfortable. The School head described

how he had had to rethink the way students in his area were taught because many were from backgrounds that were unfamiliar with higher education and did not respond well to traditional teaching. The participant from the Education Development Service observed that students at Birmingham City University were from very diverse backgrounds and had diverse learning styles that needed to be taken into account when designing learning and teaching space, physical and virtual.

A faculty dean argued that design was important but that a lot of designers seemed to develop space on the basis of prejudiced perceptions about what higher education should be. He felt that they assumed that social science students, for example, spent their time listening to lecturers in classrooms or lecture theatres.

For the School head, what was needed in Engineering was dedicated, specialist workshops rather than classrooms shared with other disciplines because he felt that traditional classrooms put non-traditional students off from engaging. Similarly, the Education lecturer found traditional classrooms to be inhibiting to deeper and engaged learning.

A student in Focus Group 1 was very positive about the way the Hive Theatre encourages a different approach to teaching and one that was more helpful to her as a mature student:

rather than having a teacher standing at the front of the classroom you can have the teacher in the middle of the classroom projecting onto the screens around the Hive rather than having to stare at a screen at the front...it's just a different teaching environment. As a mature student, I found that quite nice, rather than having the normal traditional classroom.

The same student reflected that 'I think it gets rid of the mundane secondary school or even labs environment.'

A student in Focus Group 2 reflected that she:

Think[s] they are really important and they do effect our learning process a lot. I cannot learn things in my room, I always have to get to the library or a different space to fully concentrate and get into the mindset. I think it is really important that the University provides these kind of spaces and, as far as I saw, you have a really good infrastructure.

5.1.2 A rethinking of how we use space?

This rethinking of space has, according to the participant from the Vice Chancellor's Office, been given new urgency by the Pandemic. In particular, it was observed that students and staff now need a good reason to come to campus: it cannot be taken for granted as it was before. The key idea, it seems, is to view learning and teaching space

primarily as a place to practice what has been taught rather than sit and listen to lectures. In this context, students appear to prefer to listen to lectures online at their own leisure and to engage with practical learning in class.

For the School head, this is typically known as the ‘flipped learning’ approach, one in which ‘learning by doing’ is more appropriate for students in his school than simply sitting and listening. Similarly, the Education lecturer argued that students can learn more effectively by exploring artifacts in, for example, a local museum or art gallery than in a classroom. The participant from the Vice Chancellor’s Office described this approach as ‘immersive’. She observed that:

We are starting to conceptualise what the campus offering is actually about. We are having to re-align what campus is for. There has to be a reason for coming in for. We’ve moved away from sticky campus to thinking about what is the benefit of coming in.

5.2 Existing physical spaces: relevance and usefulness for learning and teaching

In general, participants highlighted that the University was largely comprised of new buildings with many new facilities. They generally seemed positive about the facilities although there were still criticisms.

5.2.1 Consultation and engagement of stakeholders

A key criticism was that space was continuing to be designed without reference to staff and student needs. A focus group with lecturers highlighted frustration that space was designed and implemented with no consultation with the staff who were using the spaces. A dean argued that no-one had been able to tell him why classrooms were designed to have a limit of 40 students and that classrooms were provided with digitally enabled lecterns that forced the lecturers to turn their backs on the class. The dean’s comments suggest a concern that the new buildings were not developed in proper consultation with students and lecturers. However, the School head indicated that a much more consultative approach had been taken with the new STEAMhouse building. In this case, design was advised by a panel of experts, including academics, other staff from within BCU, a group of student representatives and a group of external experts including an architect.

5.2.2 Tendency towards traditional space

There were also criticisms indicating that some participants felt that University spaces were still rather traditional and limiting. In some cases, this was because the buildings were older and constructed to more traditional models. In this regard, The Education lecturer felt that the learning and teaching spaces in the City South campus were very traditional and not as good as they could be for encouraging students to learn.

However, even in new buildings, traditional models can be replicated. The dean was disappointed that in his faculty's building, there were no specialised workshops or clinics provided. Such rooms, they observed, would cost a lot of extra money to install now the building has been constructed.

However, a student in Focus Group 2 who had also studied in an Austrian university, reflected positively on the learning and teaching space at Birmingham City University:

I like the spaces at BCU a lot because, first of all, they are really colourful, they are very positive and there is a lot of light in the rooms, big windows, which we don't have so much at the University of [name given] – we have this one big room in the library and we also have open tables, but is all white and black – but here it's really colourful, which I like and it's motivating I think.

5.2.3 Impact of the Covid-19 Pandemic on experience of space

The students in the focus groups all referred to aspects of the impact of the Pandemic on their experience. A student in Focus Group 1 described how things had changed as a result of the Pandemic:

Because of Covid, everything at the moment is spaced out – that's the real change. We've got less people coming into lectures...in my foundation year (I'm in year 2 now), we had independent practice lessons in a lecture hall in Curzon and that was packed out for the first few weeks and you don't see that anymore – 60 or 70/80 students in any one place at a time.

5.2.4 Furniture and environment

The Education lecturer highlighted the value of 'pods', or places where group work can take place within a larger, open space. This highlights the importance of welcoming and comfortable furniture. Students seemed to be more aware of the importance of furniture than the interview participants. A student in Focus Group 1 reflected that:

in Curzon there are bright areas – you have the red, green and yellow zones as the colour coding and you've got the seating sort of thing, but within the classroom environment, we're not getting that. It's still hard chairs and a bit mundane: I'm in my third year and it feels a bit like back in the old days at school. I would have thought that in a university environment you would have had something that was slightly different, in this sort of age...it feels like the same sort of thing I had in secondary school.

This student clearly expected something different from plain classrooms. However, another student did not regard colours and furniture as being important:

I don't need that many things to write on or draw on, I just need a book and a pen and paper when I'm working on the computer so the furniture doesn't affect me that way – if I'm getting a small space where I can keep my book and write in it, that's more than enough; the rest is just working on the computers and I don't mind that.

A student in Focus Group 2 was positive about the room layout. They argued that it encouraged collaborative working, which was motivating:

we have one big classroom with a projector and what I quite like is that we don't have one table per person but bigger tables at which four to five people can sit so it's always group sitting. If a person wants to sit alone they can but I normally sit with four or five other people in a group and then if the teacher asks questions, we can discuss them. I like that actually, you get more motivated working with others than just by yourself.

5.3 Current and future innovative learning and teaching space

Participants felt that the University possesses significant new and innovative learning and teaching spaces, although it was also felt to be patchy. Some parts of the University were less well endowed than others. There was some engagement with the influences on design, a concern with the implementation of specialist space and with several specific new spaces. The most innovative space, it was felt, was the new STEAMhouse building on the City Centre campus although they recognised that it was only recently opened and yet to be used. The Hive Theatre attracted largely positive comment but there were criticisms. At the same time, there was unanimous support for the further development of specialist spaces across the University estate that support practice-based learning.

5.3.1 Influences on design

The design of such new spaces, argued the member of the Vice Chancellor's Office, was led by the architects and they were best placed to advise on ways in which to use the space. Examples included the STEAMhouse building, which is a new space built within an old shell. However, different influences were also highlighted. The development of the University Library in the Curzon Building was, as observed by the participant from the Vice Chancellor's Office, developed as part of a much wider national 'concerted fight by some visionaries in libraries'. In large part, colleagues at Birmingham City University are influenced by what they have seen elsewhere and felt would work at BCU. 'The UK is tiny so we go round and see what is going on', said the participant from the Vice Chancellor's Office. A former member of the teaching support service recalled that the Hive Theatre was based on an example elsewhere in the world. The Education lecturer highlighted the innovation of the 'pod', which she

recalled having seen first whilst on a trip to Finland. Students from other countries tell others at home about what they have seen. A participant in Focus Group 2 said that they were so impressed by the spaces that 'Actually, I was really impressed: it was a big thing and I told everyone back home.'

5.3.2 *The Hive Theatre*

The Dean was not positive about the Hive Theatre and felt that it was a vanity project initiated by a former member of staff. However, students appear to have been positive about the space. A student in Focus Group 1 described the Hive particularly positively:

I found that when I started my foundation year, about three years ago, the Hive in Curzon was a really good teaching space. Even if you look at it today, with regards to Covid, it's still a really good teaching space: it's airy, quite big, bigger than the normal classroom, bigger than the normal labs, the computer labs that we've got.

One of the advantages of the Hive, as mentioned by the same student, was that users can see each other and this makes engagement easier. This is contrasted with more traditional layouts:

I know I've mentioned this several times, but the Hive I think is the future way to engage more students, 'cos you've got students who can see all of their peers rather than the back of the heads of their peers, more space and you can see the lecturers...I think it's more engaging than having the old style classroom where you have one in front of the other, or computers where you can barely see above it...I'm quite short so seeing the lecturer at the front above the PC is a bit difficult for me. If you have the lecturer in the middle and the screens around, you can easily see the information displayed so rather than having to stretch my neck to see what they're doing.

5.3.3 *STEAMhouse*

Several participants commented on the STEAMhouse project and its value as a flexible space that will be shared by different disciplines and by external organisations. The participant from the Vice Chancellor's Office said STEAMhouse is a very flexible space and designed as such: 'the spaces we construct will be flexible and facilitative'. The dean felt that STEAMhouse may provide a model for other parts of the university. In particular, this 'brought in businesses rubbing shoulders with staff and students with potential for engagement'. In the Law School, he observed, 'they do similar things with the Law Clinic – providing support for the public on legal issues and engaging students with external legal practices'. The participant from the Vice Chancellor's Office said that 'the aim is to change our curriculum. As part of the STEAM agenda,

technology and art will go in' and work together. It is 'challenging the concept of what university can be'.

The School head highlighted that the STEAMhouse project has been based on a 'huge collaborative approach'. They noted that a wide range of different experts, both internal and external, were involved in developing a set of 20 characteristics that were required of the new building. The participant from the Vice Chancellor's Office felt that STEAMhouse was 'very much a vision of how we get that digitally enabled teaching space.'

Of the space itself, the participant from the Vice Chancellor's Office said that 'it's done, will be starting to teach in September' and that 'the building is old at the front and all new at the back. It's the architect pushing the art of the possible.'

5.3.4 *The Library*

The participant from the Vice Chancellor's Office highlighted the importance of the Library in changing the way we think about space. They pointed out that many university libraries have changed dramatically in the last decade and Birmingham City University was no different in this regard. The new Curzon Library (2015) is designed to be 'porous', having limited barriers between it and the rest of the building. It is easily accessible and there are large open and flexible spaces for users to work. Above all, space is designed to encourage collaborative working. This, they argued, is not a traditional library. However, the Education lecturer felt that the new approach adopted at the Curzon Library is not in place at the City South campus library, which they felt to be much more traditional.

A student in Focus Group 1 found the lack of quiet space problematic:

I use the library 'cos there you have the single rooms and the quiet rooms upstairs; they are often taken most of the time so it would be useful if there were more spaces like that. It's a social space so I suppose they are going to be chattering but you just want to concentrate on doing your assignment...

A student in Focus Group 1 felt that more space was needed and that the furniture might be more ergonomically designed:

I think bigger desks when you are in the labs – when you are in the computer labs the desks are...you only have a tiny amount of space, so if you have something like wrist problems or tennis elbow or something, you can't really rest your hands on the desk when you're typing, so it's not really ergonomically fit...and suitable chairs. For me, in the future you'd have different sorts of classroom styles, seating and desk styles so you can easily and comfortably adjust the desk...at the moment in Millennium Point, where I have my database lectures, the desks are quite cramped, two screens and a hard drive and hardly

any space, say for instance if you want to make notes, it's really cramped. The university of the future would have a lot more space, more and better seating and a bit more colour in there.

5.3.5 *Specialist spaces*

At the same time, specialist facilities are being developed. The participant from the Vice Chancellor's Office highlighted facilities such as the Paramedic Room in City South, which simulates an ambulance for health care students. Such facilities, which are technologically advanced, help to provide students with a serious 'hands-on' experience. The School head described how they had taken over spaces that were intended as social spaces, classrooms, lecture rooms and exam suites and turned them into flexible workshops, complete with computer facilities that were appropriate for the students. Both computers and rooms were ring fenced for computing students.

The participant from the Vice Chancellor's Office noted that for some subjects, the sort of specialist rooms needed were obvious. For example, the Law School has a Moot Court. They pointed out that 'other teaching spaces are bespoke' for example, in art and design and architecture, students are workshop based and there are limited numbers (and value) of lectures. They also highlighted the Conservatoire, which requires a very different set of specialist space. Different disciplines have a different approach to space and this is taken into account in developing different learning spaces. Different rooms need the appropriate equipment.

A student in Focus Group 1 described the collaborative workshops in the Millennium Point and Parkside buildings:

If talking about me as an engineering student, we have the ground floor and the first floor specially for collaborative work and whenever we have some kind of collaborative work, we have special sessions for three hours and when the tutor or lecturer and lab tech will be teaching us for one hour, and the rest of the time we will be working on our own. We get our own space, work on the computers and sit together. In Parkside building, they have more spaces for collaborative work for architecture students and any of the arts and media students because they need big spaces to work. They have A5, A2 and A1 sheets I've seen them working on with three or four students working in a group in a workshop. I was visiting the Parkside building once and it was really good in that way. They also have studios and stuff...

5.4 **The digital structures needed for blended learning and teaching**

Participants highlighted the need for integrated technology and the issues faced by the University in developing blended learning. They highlighted two sides to this: first was the challenge of integrating technology into the fabric of the physical learning and

teaching spaces. The second challenge was how to hybridise learning and teaching and develop the virtual leaning environment as a virtual space.

5.4.1 Integrated technology

In the first instance, participants made various references to integrated technology in the buildings themselves. The participant from the Vice Chancellor's Office observed that 'we use high end technology... students can work wherever they want and take the work away with them. Technology is high end – gaming and so-on – students have to do it here and at home so IT is vital. Combining technology and space – you can do your work in a café or at home as long as the technology is right'. Progress may well be patchy, as indicated by the dean's less positive comments about the way in which computers and screens were installed in classrooms. The School head, as we have seen, described how they had developed flexible workshops complete with computing technology but also noted that 'these were of high spec.'

However, a student in Focus Group 1 was critical of the variation in available software across the University:

For me, a downside is that why doesn't the university have the same packages on all computers rather than having students go to certain places? At other times, all of the lap-tops are taken – on the Bridge, there's not enough PCs 'cos there's loads of people using them.

5.4.2 Hybridisation of virtual and in-person learning and teaching

Hybridisation of virtual and in-person learning and teaching was an ongoing discussion for many years but has been brought to the fore by the Pandemic. The onset of the Pandemic, so the participants observed, brought about rapid change by forcing BCU, like other institutions, to implement a rapid transfer to entirely on-line teaching. Hence, the digital structures for blended learning have been fully implemented. The Education lecturer recalled that prior to the Pandemic, hybridised teaching, which used systems such as Skype, seldom worked smoothly or well. However, during the Pandemic, they felt that the University's move to MS Teams had generally worked remarkably smoothly: the technology works. Now we are faced, as highlighted by most of the participants, with the challenge of what can be kept and what will return to 'normal'.

The participant from the Education Development Service highlighted some of the challenges of developing hybrid online and in-person classes and argued that the line being taken by the University was to use online lectures more as a means of recording for viewing later than a 'live' facility. The Education lecturer observed that some online classes work much better for students than in-class, especially classes of reflection such as a research module, which runs late in the year: in this case, students

are tired from practical classes and placements, along with having to complete assignments, so an online class provides time and space for reflection. The dean observed that while younger students might prefer in-person classes, some students, such as those with childcare responsibilities, may find virtual teaching more useful at certain times of day.

A student in Focus Group 1 reflected on access to digital facilities:

As I'm a final year student, I need a computer all the time with specialist software that I have access to in MP; they have also given me remote access to a BCU server so I can access it from my own lap-top so, even if I have my own lap top in Curzon or somewhere else I'm sitting, I can just connect it to the wi-fi and access the BCU server.

A student in Focus Group 1 described a hybrid situation:

I prefer having a small classroom size because the teacher can then speak to each individual student and give more time to each student. Online...Teams I think is quite good personally because you can message teachers and you get answers straight away...it might take a few days but an answer is there, rather than sending an email and thinking 'has the teacher seen this, they've got 100s of emails coming in to their in box' – have they missed mine. You can share your screen and they can help you with certain aspects of it – so that's good.

5.4.3 *Campus as social space?*

At the same time, the participant from the Education Development Service observed that Birmingham City University students generally disliked on-line classes but were positive about online lecture delivery. The participant from the Vice Chancellor's Office observed that a lot of Birmingham City University students are from BME backgrounds and that that the campus was a safe, social space away from home. International students, who lived in University accommodation found that they needed the campus to meet and engage with other students. Students from multi-generational households found that they needed the campus for space to study. The dean reflected this view, opining that most young students prefer the experience of being on-campus as it is more sociable.

A student in Focus Group 1 reflected the social side to study spaces at the University:

Every floor in Curzon has a good amount of space that you can just go and study or chill with your friends - there are some quiet zones, some red zones, green zones, yellow zones. Most of the time I am in the yellow so I can do my group work and talk with my mates.

6. Conclusions and recommendations

This report has highlighted a diverse and interesting experience of developing and using learning and teaching space at BCU. This section brings together the key conclusions and suggests a range of recommendations from that experience. Of particular note is the impact of the Covid-19 Pandemic on how learning and teaching space is perceived and on strategies for the future.

6.1 Conclusions

The experience of developing innovative learning and teaching space at Birmingham City University fits well into the broad context of learning and teaching space in the UK. The experience seems to reflect many of the trends and issues facing many other UK universities. The University is affected by a range of contemporary issues and requirements, particularly legal, that influence the way in which space is developed. Birmingham City University, like others, is affected by the student experience and engagement agenda, which relates to the implementation of full tuition fees from 2012; it also relates to particular legal requirements to ensure that students do not face discrimination because of gender, ethnicity, age or disability, all of which have an impact on the way space is developed. The University has also been affected by the move towards ever integrated technology and blended learning, culminating, rather unexpectedly, in the Covid-9 Pandemic, which struck during the early stages of the LTSHE project. The Pandemic has, in fact, changed not only the way technology is used but how different stakeholders view space and how it is used.

The methods we chose to undertake this Output were agreed amongst the partners so we used similar approaches: they were chosen because they were the most sensible approaches in the circumstances. They both addressed the underpinning concerns of the project and were appropriate to all partner institutions. There were challenges, however: in particular, there were restrictions as a result of Covid-19 relating to face-to-face interactions, so all interviews and focus groups were undertaken on-line. It was also difficult to bring together focus groups: this has often been problematic. However, we targeted particular groups and individuals to explore particular perceptions of space at the University.

The University has a developed current strategy for developing its space and a developed learning and teaching strategy. Learning and teaching has developed hugely in recent years and recognition seems to have been given to the need for appropriate space. At the same time, the University has slowly developed its blended learning approaches. The Pandemic, however, has had a huge impact on the development of hybridisation and the implementation of an effective on-line learning facility. Not only has on-line learning been affected by the Pandemic: this research

highlights a resulting move towards a greater emphasis on implementing practice-based learning on campus.

The perceptions of targeted participants have provided a useful counter to the documentation discussed above. There is some excitement at the development of STEAMhouse and its potential for changing the University. The Pandemic has been regarded as the stimulus to huge change in the way we perceive space and its purpose. It has also been accepted that the technology has been implemented and works. The next stage is to rethink how we use online and in-person learning facilities.

6.2 Recommendations

This report highlights a range of activity and principles that informs potential recommendations:

6.2.1 Reflection after the Pandemic

Following the Covid-19 Pandemic, the higher education community(-ies) must reflect deeply on how space is used. Lessons must be learnt about how teaching is undertaken and how students learn.

6.2.2 Reflection on the impact of blended learning

We have rapidly developed effective tools for online learning during the Pandemic but we need to consider what to learn; what to keep and what to leave behind. The concept of blended learning has been forced upon us: now we need to establish what actually works.

6.2.3 Take account of diversity of users

We need to recognise the diversity of students, be aware of how different groups of students respond to the space around them. Design space to be responsive to different the social, cultural, abilities and ages of users.

6.2.4 Reflect on the role of the campus

The Pandemic has also forced us to reflect on what the campus is really for. We need to ask 'what is campus for?' Is the traditional campus fit for purpose or do we need to change the model? Is there a move towards a more practical concept of higher education?

6.2.5 Ensure that space is responsive to users' needs

Learning and teaching space needs to be responsive to different needs. Some rooms will need to be flexible and adaptive whilst others will need to be designed for specialised purposes.

6.2.6 Design space to encourage different types of learning

Classrooms and lecture theatres can be redesigned to reflect different types of learning. In particular, classrooms should be designed to encourage collaborative working amongst students rather than focussing on the lecturer.

6.2.7 Integrate technology into buildings

Technology needs to be integrated into the fabric of new buildings.

6.2.8 Ensure a strong VLE

The VLE needs to be strong and working across the campus and beyond. Students and staff need to be able to use the VLE both at home and in different parts of the University estate.

6.2.9 Ensure that space is comfortable and ergonomic

Space needs to be comfortable and ergonomic and relevant to the needs of the class. Thought needs to be given to the environment of space: colours, furniture and access to the space.

6.2.10 Ensure that Library is at the heart of space design

Thought needs to be given to the role of the Library as a pivotal learning space for students. What barriers prevent the more effective use of the library?

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