



UNIVERSITY OF
LINCOLN

New learning environments – MB 1012, MB 1019 and MB 1020

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Business case

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1 Executive summary

1.1 This document articulates the case for creating three new learning environments within the Learning Landscapes area on the first floor of the Main Admin Building.

1.2 This proposal is a response to several spatial and academic factors:

- the immediate need to create *additional seminar capacity* for the 2012/13 academic year within existing space
- the continuing Learning Landscapes imperative for spaces which optimise student experiences by combining *expression, effectiveness and efficiency*
- the need to reimagine our seminar spaces as *catalysts for the creation of practical knowledge* in the context of the Student as Producer paradigm

“Students learn more when they are intensely involved in their education and have opportunities to think about and apply what they are learning in different settings. And when students collaborate with others in solving problems or mastering difficult material, they acquire valuable skills that prepare them to deal with the messy, unscripted problems they will encounter daily during and after college.”

Chickering and Gamson (1991)

1.3 The project involves the division of MB 1019 into two rooms (designated MB 1019 and MB 1020) and the extension of MB 1012 by knocking through into adjacent store room MB 1018.

1.4 The new rooms will be known as MB 1012 (which will have capacity for groups of 24 + 2 lecturers), MB 1019 (capacity for 48 + 2) and MB 1020 (capacity for 36 + 2). MB 1019 and MB 1020 will share a folding wall so that they can be used together when needed.

1.5 All three rooms will be fitted out with new furniture and equipment to support the Student as Producer paradigm, and specifically to facilitate the creation and sharing of knowledge by room users working in small groups during teaching and learning events. A number of other enhancements will also be made in order to improve the environments within the rooms. The designs are detailed in section 4 of this document.

1.6 The project budget of £130,000 was approved by SMT on 5 March 2012. The rooms will be ready for use on 6 August 2012.

1.7 Support and development resources will be provided for room users in order to maximise the adoption of the new approaches which are facilitated and supported by the rooms.

1.8 The project is a direct descendant of the 2008 Learning Landscapes project and the 2010 Faculty of Business & Law project. It incorporates learning and design elements from both. In turn, these new rooms will be evaluated during 2012/13 by the Learning Spaces Group and this evaluation will be used in the planning of future projects.

“To support students through their learning requires a ‘holding environment for the toleration of confusion’ ... such a space needs to be ‘safe’, but not merely a ‘comfort zone’. It is where students can feel able to take risks and deal with uncertainty, as an essential pre-condition of learning. They need to know that their fellow students are also experiencing difficulties.”

Jos Boys (2011), Towards Creative Learning Spaces, p43

1.9 Feedback and suggestions for further projects are welcome and should be addressed to Sam Williams, Space Planning & Strategy Manager (sawilliams@lincoln.ac.uk).

2 Context and rationale

2.1 The University's strategic objectives for 2011 – 2016 are (emphasis added):

- **To continuously improve our learning environment based on personal engagement with all students through quality research-engaged teaching and learning where students create and develop new knowledge in collaboration with their lecturers**
- To promote an internationalised culture of enterprise and innovation across our communities - locally, regionally and internationally, working closely with employers
- To develop and promote purposeful knowledge and research and develop innovative practices working to support the changing environment
- **To help students develop into highly engaged, employable and creative-thinking graduates who contribute to the development of the society and economy**
- **To create a financial environment to allow us to invest in our future**

2.2 This paper describes a project which will directly support the first, fourth and fifth of these objectives. It will significantly improve the learning environment and create three spaces which catalyse personal engagement with and between students in collaboration with their lecturers. This type of engagement during teaching and learning events will directly support students' development into highly engaged, employable and creative-thinking graduates. The proposals in this paper will also enhance the University's efficiency by enabling a significantly greater volume of core undergraduate teaching and learning business to take place without any increase in spatial footprint and with only a slight increase in running costs.

2.3 The University's students and staff spend approximately 1,045,000 person-hours per annum in seminars and lectures. Seminars and lectures are primary modes of delivery for the majority of University programmes and are hugely significant contributors to students' overall experiences of the University.

2.4 Seminars, lectures and various other events such as group work, meetings and examinations take place in a 'central pool' of rooms. These rooms are provided and maintained by the Estates & Commercial Facilities team; provided with ICT equipment and services by the ICT Services team; and timetabled by Timetabling & Room Bookings team.

2.5 The central pool was established in 1996 when the Main Admin Building opened. Since then, the pool has grown and developed through the construction of new rooms; the refurbishment of existing rooms; and the removal of a number of inherently unsuitable rooms. These rooms vary widely in their functional suitability, or fitness for purpose.

2.6 The University's nascent Learning Spaces Group in November 2011 completed a 'traffic light' functional suitability assessment of the central pool rooms. Two rooms were rated 'red': MB 1019, which is extremely spatially inefficient as a result of its large size and elongated form and as a result very rarely more than 50% occupied; and MB 1012, which is undersized and could be enlarged by 65% by simply knocking through to the adjacent underused storeroom MB 1018 to provide more capacity.

2.7 The LSG therefore identified the division of MB 1019 into two large seminar spaces and the knocking together of MB 1012 and MB 1018 into one smaller seminar space as the two top priorities for implementation in summer 2012.

2.8 In February 2012, the University's international partner Study Group confirmed its requirement for five additional classrooms on the Brayford Pool campus to enable its expansion for 2012/13. This underlined the need to create additional seminar capacity in the central pool in summer 2012.

2.9 All of the central pool rooms are deficient in the physical features and affordances to optimally support the sort of research-engaged teaching and active and collaborative learning which is implied by the University's Student as Producer paradigm. The University now requires, and the Students' Union increasingly demands, spaces which better support and facilitate students and lecturers in the co-creation of active and collaborative teaching and learning experiences.

2.10 The nature and benefits of active and collaborative learning are articulated by Chickering and Gamson:

"Students learn more when they are intensely involved in their education and have opportunities to think about and apply what they are learning in different settings. And when students collaborate with others in solving problems or mastering difficult material, they acquire valuable skills that prepare them to deal with the messy, unscripted problems they will encounter daily during and after college."

Student Voice

"Currently, in seminar learning spaces **we often try to work in smaller groups but this becomes problematic** when it involves lifting chairs over desks, rearranging furniture and having your back to whoever is presenting. It's difficult to talk, elaborate and generate ideas when, physically – we're sitting behind a barrier to the tutor and unable to face away from them. It's all a little reminiscent of school."

Wesley Wells, incoming SU Vice-President (Academic Affairs) – emphasis added

Chickering and Gamson identify seven specific active and collaborative learning behaviours which contribute to student satisfaction:

- Asking questions in class or contributing to class discussions
- Making class presentations
- Working with other students on projects during class
- Working with classmates outside of class to prepare class assignments
- Tutoring or teaching other students
- Participating in community-based projects as part of a regular course
- Discussing ideas from readings or classes with others

2.11 A new type of space is required in order to directly support these behaviours and in so doing optimally support Student as Producer. It must combine the core strengths of the best lecture rooms (comfort, space efficiency, good AV equipment and acoustics), seminar rooms (encouragement of peer-to-peer and student-to-lecturer discourse) and highly collaborative group and meeting spaces (support for co-creation and sharing of individual and group learning).

2.12 This paper makes the case for creating three of these new teaching and learning environments in summer 2012, and then evaluating them during 2012/13, as a first step toward a potential campus-wide rollout of new teaching and learning spaces.

3 Business options

Note: Option 2 was approved by SMT on 5 March 2012.

Table – quick comparison of options

Decision factors	Option 0	Option 1	Option 2
Usable capacity (rooms)	2	3	3
Usable capacity (seats)	78	144 (85% increase)	108 (38% increase)
Enable international growth		✓	✓
Support Student as Producer			✓

3.1 Rejected Option 0 – base case (inaction)

Inaction is precluded by the requirement to reallocate five central pool rooms to Study Group for 2012/13. It is essential to create additional capacity within the existing central pool footprint in order to accommodate the University's core undergraduate and postgraduate teaching activities for 2012/13 while reallocating the required rooms to Study Group.

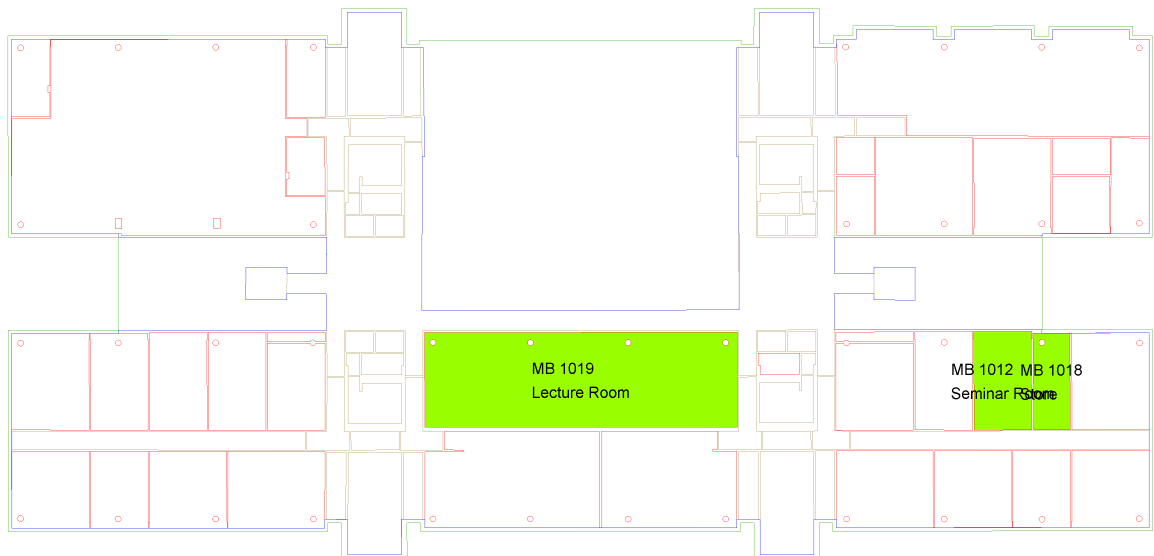
Option 0 carries no immediate costs. However, it would not create any additional teaching and learning capacity for 2012/13. It would necessitate refusal of Study Group's request for additional rooms. This would damage the University's position in respect to its internationalisation and financial sustainability strategic objectives. Option 0 would also leave MB 1019, a valuable and highly visible space, grossly underutilised at a time when there are severe pressures on teaching and learning space across the estate.

3.2 Rejected Option 1 – create needed capacity without addressing Student as Producer

The two most significant opportunities to increase central pool capacity within the existing footprint are shown in Fig. 1 below:

- Division of lecture room MB 1019 to create two large teaching and learning spaces (designated MB 1019 and MB 1020)
- Merging of seminar room MB 1012 and store room MB 1018 to create one small teaching and learning space (designated MB 1012)

Fig. 1 Main Admin Building first floor showing MB 1012, MB 1018 and MB 1019



In this option, the University would make the changes to door and wall positions; AV and lighting controls; floor, wall and ceiling finishes; heating; ventilation; and signage; and reinstall existing furniture and equipment in MB 1019, MB 1020 and MB 1012.

This option would yield quantifiable benefits: MB 1012's working capacity would be increased from 18 to 24, while MB 1019's working capacity would be increased from 60 to approximately 120, creating a working capacity of 144 seats (an 85% increase over the current working capacity of 78 seats).

However, this option would not deliver any qualitative benefits in terms of support for Student as Producer or the teaching and learning experience. It is purely an efficiency option.

3.3 **Approved Option 2 – create needed capacity and address Student as Producer**

By executing the physical changes described above and also redesigning MB 1012, MB 1019 and MB 1020, we will create three efficient new spaces which express the Student as Producer paradigm and support high-engagement teaching and learning interactions, while creating sufficient additional capacity to support the expansion of Study Group. Option 2 will support three of the University's strategic objectives:

- To help students develop into highly engaged, employable and creative-thinking graduates who contribute to the development of the society and economy
- To continuously improve our learning environment based on personal engagement with all students through quality research-engaged teaching and learning where students create and develop new knowledge in collaboration with their lecturers
- To create a financial environment to allow us to invest in our future

Option 2 has been approved by SMT on 5 March 2012 and will be implemented. Overleaf is an overview of the design and scope of the proposed improvements.

4 Design overview and scope of works

- 4.1 The three new spaces will retain their existing ICT and AV equipment, which has been recently upgraded with new projectors and is fit for use. The design team will investigate options for improving “bring your own device” connectivity to this equipment – for example, the addition of wired and / or wireless connection options to support tablets and other mobile devices. However, the major changes to the rooms will be relatively “low tech”. The design is still subject to change; current proposals are as follows:
- 4.2 A folding partition will be installed in MB 1019 to create the two new rooms designated MB 1019 and MB 1020. The choice of a folding partition augments project complexity and cost while potentially compromising acoustic separation between the two rooms. During daily operations, the partition will almost always be kept closed. However, this flexibility is considered highly desirable by the Conference Office, the Communications, Development & Marketing team, and the Students’ Union, all of whom have occasional requirements for the uniquely large and centrally located space offered by MB 1019. The benefits are considered to significantly outweigh the potential functional compromises, and the design team will ensure that the partition selected is fit for purpose.
- 4.3 The existing uncomfortable, unsupportive chairs and inflexible tables in all three rooms will be replaced. Following a review of all existing seminar chairs and dozens of commercially available options, and on-campus testing, we have selected the Node seminar chair by Steelcase (see Fig. 2). This is a unique product designed for higher education and incorporates an excellent large ambidextrous writing surface, personal storage space for bags, and a comfortable swivel-mounted seat. It supports rapid transitions between multiple modes and layouts significantly better than any other seating we have evaluated.

Fig. 2 Node chair features (note: the chairs installed in the rooms will be white)



4.4 The doors for MB 1019 and MB 1020 will be relocated to the corners of the rooms nearest their respective landings, to improve space efficiency. This will also reduce travel distances so that groups of students do not have to traverse the narrow central walkway above the Atrium in order to enter or leave the rooms. This has the added benefit of making the rooms easier to locate for new students, staff and visitors, for example on Open Days.

4.5 Frosted vinyl manifestations will be installed on the glazed walls of MB 1019 and MB 1020 in a band between seated eye height (~1000 mm) and standing eye height (~1600 mm) so that students and lecturers are not distracted by people walking past the classrooms, without cutting the rooms off completely from the outside view.

*Fig. 3 Mobile whiteboard.
Up to six students will
work at each of these.*



4.6 The lighting controls for MB 1019 and MB 1020 will be relocated from their current location in the centre of the long wall to behind the lecturers' traditional position in MB 1019 and MB 1020, where the AV equipment is located. Lighting will also be reviewed to consider whether there are any improvement opportunities in optimising colour temperature, positioning and control of the lighting system.

4.7 Freestanding mobile whiteboards will be provided (one for every 6 students) to provide large blank canvasses for idea generation and sharing of group work. Easel-style double-sided whiteboards with integrated flipchart pegs and storage for whiteboard pens, cleaning cloths and cleaning sprays have been selected (see Fig. 3).

4.8 Living plants will be introduced. These will remove carbon dioxide and volatile organic compounds from the air without additional energy consumption, and will regulate humidity, as well as enhancing the rooms' visual appearance. The design team has selected *Dracaena deremensis* (pictured below) which was found to be the most effective variety tested by NASA in its 1989 study of plant-mediated mitigation of indoor air pollution and is compatible with the light regime within the rooms.

4.9 Consumables (whiteboard markers, cleaning cloths and cleaning sprays) will be supplied to the rooms (initially from the project budget for 2012/13, and then ideally from a proposed consumables budget to be set up for all central pool rooms for 2013/14 onwards) so that these basic items are always available to students and lecturers using the rooms.



4.10 It is proposed to name each of the three rooms after an inspiring individual and to feature a quotation(s) from that person within the room. For example: one room could be named for Niels Bohr and include his statement, "How wonderful that we have met with a paradox. Now we have some hope of making progress."

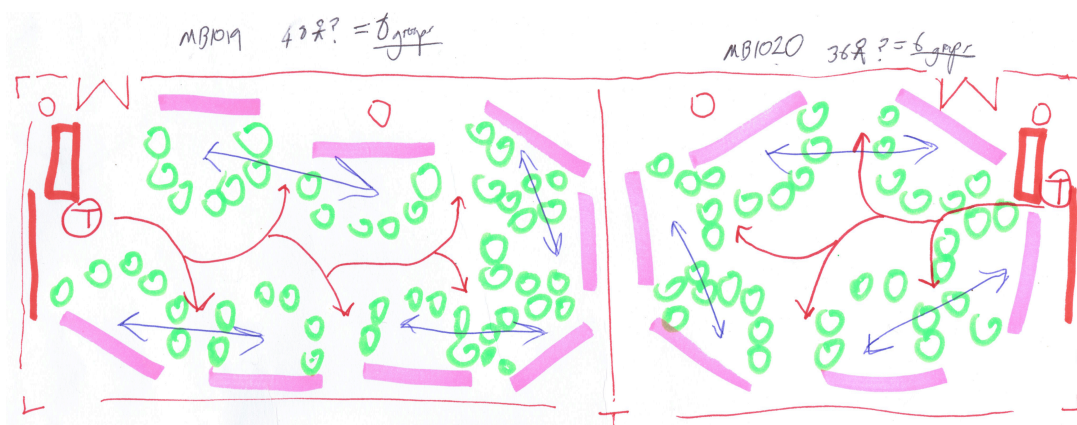
4.11 New printed panels will be installed within the rooms to outline the rooms' features and suggested uses, and to encourage room users to share their feedback on the new teaching and learning environments. A suitable channel(s) will be set up for the sharing of feedback in addition to the organisation of interviews with room users.

4.12 Aroma diffusion systems will be included in the rooms on an experimental basis to determine whether aroma can make a welcome contribution to the experience of room users through masking unpleasant smells and enhancing room users' mood. These are compact fan-assisted systems which use replaceable scent cartridges. It is proposed to experiment with

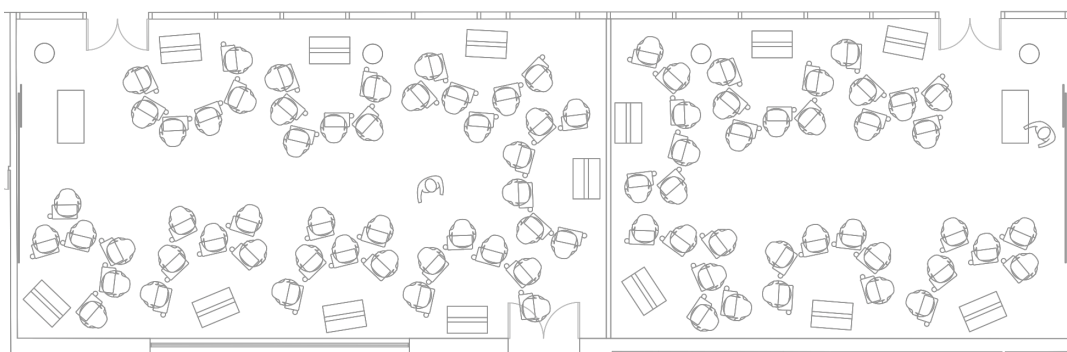
the scents used during 2012/13. The design team has shortlisted pink grapefruit, orange, coffee mocha and peppermint as promising aromas for initial testing.

- 4.13 Air cooling systems will be installed in MB 1019 and MB 1020 to enable room users to mitigate the worst effects of summer overheating. The rooms are not directly sunlit and so are not subject to extremes of temperature; however, the active nature of the rooms' intended use increases the need for cooling. The cooling units themselves have already been procured through another project and so this project will simply install and commission the units and the associated controls.
- 4.14 Note: the spaces are expected to have a ten-year design lifespan. All design elements are selected with this lifespan in mind, with the exceptions of consumables and living plants.
- 4.15 Each space has an infinite number of potential layouts and no 'right' or 'official' configuration. It is impossible to anticipate all of the rooms' use modes. and the design team has instead focused on ensuring that many options are readily available to users.
- 4.16 The sketch below shows one potential arrangement / moment in MB 1019 and MB 1020, based on groups of six students (green circles) clustered around a whiteboard (pink lines) and a single teacher / lecturer in each room, at this moment acting as a roving interlocutor (red arrows). In a number of minutes' time, the rooms might revert to a plenary configuration or a series of presentations by each group in turn.

Sketch layout showing MB 1019 and MB 1020 with partition wall closed, during a group work session, with roving interlocutors



The same concept is shown below to scale:



5 Expected uses and benefits

- 5.1 Each of the three new spaces (MB 1012, MB 1019 and MB 1020) is expected to be timetabled for approximately 720-750 hours of seminars per annum, based on the known 2010/11 timetabled utilisation of the MAB seminar rooms (average: 735 hours per room). This is the primary intended use of the spaces and is expected to account for well over 90% of their total use.
- 5.2 The expected seminar use across all three rooms is therefore approximately 2,200 hours per annum, or 22,000 hours over the design lifespan of the rooms. Based on the current average timetabled occupancy rate for Brayford campus central pool rooms (44%), this equates to 104,500 student-hours of seminar activity across the three rooms per annum, or 1.045 million student-hours over the design lifespan of the rooms.
- 5.3 The student and staff experience in these rooms will be significantly better than in other seminar rooms. Some of the experiential benefits are 'passive', in that they will not require any change from current behaviour by students or staff. Others are 'active', in that they will necessitate behavioural change in response to the rooms. Benefits realisation and evaluation will need to be handled differently for these two classes of benefits. A benefits realisation plan will be developed during the detailed design phase.
- 5.4 The 'passive' teaching and learning benefits delivered by the rooms will include:
- increased physical comfort and ease of writing / typing notes as a result of new seating, leading to increased concentration on seminar content and participation
 - increased layout flexibility as a result of the wheeled chairs and whiteboards, providing additional writing surfaces for lecturers' use and reducing time and effort required to reconfigure the room during teaching events
 - improved air quality and temperature control as a result of the air-cleaning living plants, the aroma diffusion systems and (in MB 1019 and MB 1020) the air cooling system, leading to increased concentration, alertness and retention



5.5 The 'active' teaching and learning benefits delivered by the rooms will include:

- greatly reduced friction in transitioning between didactic / plenary modes with a single point of focus and pair / group work modes with multiple points of focus distributed around the room
- Each room will have $n / 6$ whiteboards, where n is the total room capacity. Since the whiteboards are double-sided, there will be scope for $n / 3$ groups to work simultaneously in each room
- facility to symbolically divide the rooms into two or more zones through arrangement of the whiteboards into room dividers
- improved visual and physical access to students through removal of static tables and inclusion of swivel-mounted chairs which facilitate the maintenance of eye contact between seated students and a roving lecturer (or *vice versa*)

Student Voice

“Collaboration is a key element to idea generation. It would be good to work in an environment which complements this. We would like to see a combination of adaptable furniture and the use of technology to help us work most efficiently. It would be so useful to be able to **seamlessly switch from listening to a tutor to doing group work and then back to the tutor/rest of the group to present.**”

Wesley Wells, incoming SU Vice-President (Academic Affairs) – emphasis added

5.6 In addition, MB 1019 and MB 1020 and (to a lesser extent owing to its smaller size) MB 1012 are expected to be used for a wide range of Students' Union society meetings; Conference Office activities; staff meetings; and Communications, Development and Marketing activities such as Open Days; as is currently the case.

6 Expected dis-benefits

6.1 The rooms will appear more 'messy' and 'chaotic' than do traditional fixed-layout seminar or lecture rooms. An infinite number of arrangements is possible in each room and there is by design no 'right' or 'official' layout. Occupying groups will therefore need to arrange their rooms for their needs. Indeed the rooms are intended to shift and change, perhaps multiple times, *during* a single occupation. The rooms have been designed in order to make this as quick, easy and distributed a task as possible. Furthermore, design elements and colours have been selected to minimise visual clutter in order to mitigate the sense of disorder.

6.2 The rooms will not provide as much capacity as fixed-layout rooms of the same size would. Furthermore, the rooms are deliberately not optimised for density / capacity – space is left in order to enable the widest range of layout options for room users and to ensure that easy circulation around the room is possible in any configuration. The rooms are therefore not as efficient as they could be – however, they are more effective, more pleasant and more supportive of the Student as Producer paradigm than they would be if more densely filled.

6.3 The rooms do not force the adoption of new approaches, in that they are designed to be wholly compatible with didactic, front-facing teaching. In this sense the rooms are pedagogically conservative, or at least, undemanding. However, it is thought that the rooms' overt support for other types of teaching and learning moments, combined with the support which will be provided by CERD and Estates & Commercial Facilities, will allow and encourage room users to 'migrate' to new approaches at their own speed and to 'dip in' to more active / participative patterns of activity on an experimental basis.

7 Timescales

7.1 The key planned activities and milestones within the project are as follows:

Activity / milestone	Date	Status
SMT approval	5 March 2012	Complete
Detailed design	March – May	In progress
Procurement	April – June	In progress
Refurbishment	9 – 27 July	Planned
Fitout (furniture etc)	30 July – 3 August	Planned
Set up evaluation systems	9 July – 3 August	Planned
Rooms enter use	6 August	Planned
Dissemination and support	6 August – 21 September	Planned
Monday of Induction Week	17 September	Planned
Initial evaluation report	Dec 2012 – Jan 2013	Planned
Planning for next project(s)	Sep 2012 – Mar 2013	Planned

8 Costs

8.1 The total project cost is £130,000 including VAT.

8.2 Each of the three new spaces (MB 1012, MB 1019 and MB 1020) is expected to be timetabled for approximately 720-750 hours of seminars per annum, based on the known 2010/11 timetabled utilisation of the MAB seminar rooms (average: 735 hours per room). The total expected seminar use across the three rooms is therefore approximately 2,200 hours per annum, or 22,000 hours over the design lifespan of the rooms. Based on the current average timetabled occupancy rate for Brayford campus central pool rooms (44%), this equates to 104,500 student-hours of seminar activity across the three rooms per annum, or 1.045 million student-hours over the design lifespan of the rooms.

8.3 This equates to a project cost of 12.4 pence per student-hour of timetabled seminar activity over the design lifespan of the rooms.

9 Risks

9.1 The creation of new learning environments is inherently experimental. MB 1019 has been a locus for this type of experimentation for several years since the original Learning Landscapes seminar rooms were created in 2008. This inherent risk has been mitigated by the grounding of all design elements in the three Learning Landscapes principles of efficiency, effectiveness and expression: nothing has been included in the design without passing these three tests.

9.2 The other major risk is of non-adoption of the active, Student as Producer approaches enabled and supported by the new rooms. The Learning Spaces Group and CERD will work to mitigate this risk by supporting staff and students timetabled into the rooms by explaining and demonstrating what is possible in the new spaces, and are considering ways to incentivise and publicise good practice in the spaces during 2012/13.