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## Flexible Learning Spaces Evaluation Report

Anise Bullimore, Senior Educational Developer, Learning Development Centre (LDC),  
Kate Reader, Senior Educational Technologist, Educational Support Team, School of  
Arts and Social Sciences, Ajmal Sultany, Research Assistant, LDC.

### Abstract:

City University, London is tackling the challenge of ensuring the learning spaces provided are able to meet the anticipated increase in technology usage and prevalent pedagogies. There is no longer a standard classroom design that will achieve this goal and therefore it is imperative to pilot and explore a variety of flexible learning spaces. This report feeds back on an evaluation of two flexible learning space approaches piloted in the autumn term of 2012 as alternatives to traditional computer rooms laid out in rows with the lecturer positioned at the front. These approaches are: pop-up computers on circular tables in AG24A; and laptop lockers enabling staff to borrow laptops to use with students on node chairs in AG24B. Each of these approaches also supported the use of students' own devices in learning spaces. These methods were evaluated using surveys, interviews and an open house forum. The report shares the findings and recommendations from this evaluation and future plans for learning spaces.

**Key words:** Learning spaces, evaluation, computer room, flexible spaces, health sciences

### Introduction and context:



1 Photograph of the open house forum in AG24B

“These flexible learning spaces have enabled us to transform the way we deliver the curriculum to our students...The huge advantage is that the learning spaces can be transformed so easily, from an intensive group work session to a more traditional setting in a matter of moments; even where there is fixed seating the space around the seating and the circular tables allow students to interact with the lecturer and other students. “ (Julie Attenborough, Associate Dean for Education Technology and Innovation, School of Health Sciences)

Learning spaces are central to the learning experience and to an institution's ability to compete in a global marketplace. Increasingly Higher Education is moving away from transmissive modes of education and embracing interactivity and collaboration as core to the learning experience. Meanwhile, computer use is no longer only a tool for online education and is becoming integral to the physical learning experience. Consequently, in common with other institutions, City University, London is tackling the challenge of ensuring the learning spaces provided reflect these changes and are able to meet the anticipated increase in technology usage and prevalent pedagogies. There is no longer a standard classroom design that will achieve this goal and therefore it is imperative to pilot and explore a variety of flexible learning spaces.

This report feeds back on an evaluation of two flexible learning space approaches piloted in the autumn term of 2012. These approaches are: pop-up computers on circular tables in AG24A; and laptop lockers enabling staff to borrow laptops to use with students on node chairs in AG24B. Each of these approaches also supported the use of students' own devices in learning spaces. They each enable the use of computers, tablets or smartphones as an educational tool within a learning space that has been configured to support group work and flexibly moving from one activity to another. This report originally contained an evaluation of the use of an iPad trolley and a sector review. However, these elements have been published elsewhere separately.

These evaluations have shown that each approach has been on the whole positively received and can support the needs of staff and students around the integration of computer usage, flexibility, interactivity and collaboration. Numerous lessons have been learnt around implementing and supporting these approaches. It has become clear that each method supports specific needs and may not suit every education scenario. This report will share the findings of these evaluations along with recommendations for improvement to the existing approaches and spaces and make informed recommendations for the creation of much needed future flexible spaces at City University London.

Please note that anonymised evaluation data and tools used are available on request.

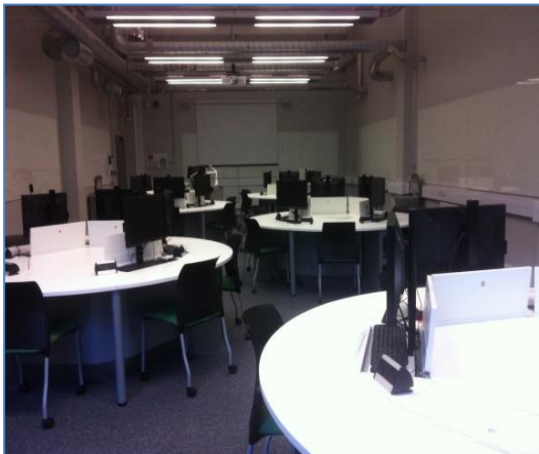
A number of driving forces brought about the implementation of these pilot approaches. This included meeting the changing needs of staff and students and ensuring that City University London is on a par with similar higher education institutions in terms of the variety and quality of learning spaces offered. The impetus to create AG24 as a flexible learning space came from the School of Health Sciences. Space was required as a result of the relocation of teaching in computer rooms at Whitechapel. The flexible learning space configuration was proposed by School of Health Sciences to support their new problem-based learning (PBL) curriculum in which students would work in small groups during lecture time in order to 'solve' real-world problems.

Feedback gathering undertaken in the early part of 2012 gave an insight into current and anticipated computer room requirements. This consisted of a survey of School of Health lecturers, a survey of staff that had booked to use computer room at the Northampton Square campus and feedback from each school, totalling approximately 60 staff members, using PRS handsets at gatherings of senior lecturers such as Teaching and Learning Committees.

A number of themes and recommendations emerged from the survey of computer room users. Responses confirmed that there is a need for a wider variety of learning spaces at the University. The majority of respondents noted the prevalence of students currently bringing their own equipment that they used during lectures (laptops tablets and smartphones). Most respondents predicted the increased usage of computers and tablets within the classroom. As lecturers anticipate the trend of students increasingly bringing their own laptops and mobile devices to lectures, these flexible spaces would not need to supply computer equipment for all the students, merely enable them to work in a flexible manner.

Two alternatives to traditional computer rooms, that is, static computers on fixed desks in rows facing a space at the front for a lecturer, have been piloted and evaluated here:

#### **Circular tables with pop-up computers.**



**2 Photograph of AG24A**

AG24A has been renovated as a thirty seat computer room with five large circular tables each containing six PCs. The computer screens can be pushed to come up and become computer tables or pushed down to become a table or allow users to bring their own devices. The seats have wheels and there is significant space between the tables for staff and students to circulate. Two long walls are covered in squiggle glass. There is a printer, a pod and a screen at the front of the room.

### **Laptop lockers**

AG24B has been renovated as a twenty five seat flexible learning space with node chairs and access to twenty laptops in laptop lockers in the room outside the space. Staff can access the laptop lockers by collecting a card from reception. Staff need to retrieve the laptops from the laptop locker prior to the class and return them afterwards. The laptops are charged up in the laptop locker. Students can also bring their own devices to use in the room. Node chairs can move easily around the room enabling students to sit in a variety of configurations such as pairs, groups or lines. The laptops or other devices can be placed on the node chair trays for students to use thus turning the room into a computer room that also enables group work, movement around the room with space for the staff to circulate and other non-computer based activities. The walls are covered with squiggle glass and there is a pod and screen at the front.



**3 Photograph of AG24B**

### **Rationale for exploring/discussing this area and, where a study has been undertaken, the methodology:**

This evaluation formed part of the wider Strategic Learning Environment (SLE) project work, and has ethical approval under the broader SLE project. The evaluation was conducted during the autumn term and used four methodologies; surveys, an open house forum, interviews with staff, and laptop locker usage. It was aimed primarily at evaluating if AG24A and AG24B meet staff and student needs.

- Surveys: Students using AG24A and AG24B were invited to complete paper-based surveys in the room. 30 students responded with 5 giving feedback on AG24A and 25 giving feedback on AG24B. The surveys gave broad feedback on the student experience of using the spaces.
- Open House Forum: Staff and students were invited to attend an open house forum held in AG24B from 12-2pm on 5<sup>th</sup> December 2012. Sixteen staff from health sciences, informatics and journalism and one student attended the event. Lunch was provided. Staff gave verbal feedback to four LDC staff hosting the event, were given demonstrations of the laptop lockers and used the squiggle glass. The forum successfully served two purposes. First of all it was an opportunity to give detailed feedback on the space while physically experiencing the space and able to use the equipment, and secondly this event raised awareness of the spaces, gave inspiration on how to use the equipment and increased confidence in using the space and equipment. The open house forum is documented here:

<http://blogs.city.ac.uk/educationalvignettes/2012/12/05/openhouse/>

- Interviews: Staff attending the open house forum and staff that had used AG24A and AG24B were contacted for short interviews in person or via email to elaborate on their experience of using the spaces and computer alternatives.

### **AG24A Evaluation Findings**



#### **5 Photograph of AG24A**

##### **Case Study: Shareville**

Shareville is a simulated reality environment that involves 360 panoramas and 3D resources used commonly for teaching in the School of Health Sciences (SHS). The virtual environment allows students to navigate their way through scenarios and solve problems that would otherwise be difficult to replicate in class. To use Shareville effectively students need to have access to the software while simultaneously working in groups. For several reasons AG24A was an ideal choice for Shareville classes. The round tables are ideal for group work; the ability to push the computers down in the desks allows students to swiftly manoeuvre between computer work and group discussion; the squiggle glass on multiple walls allowed for easy access for students to create collaborative notes; and the spaces between the round tables allowed for easy movement around the space by both teachers and students. The Shareville users felt that AG24a met their teaching needs and felt that this style of room had potential to support their teaching in the future.

## **AG24A Findings**

AG24A is being used extensively by academics in SHS and Journalism (due to its proximity to the Journalism department).

### **Flexible room**

Interviews were conducted with eleven staff that have taught in AG24A. 9 of the 11 found that the room met their needs, and all 9 also commented specifically that the room was excellent for the facilitation of group work. 2 staff members felt that the room did not meet their needs, and the reasons cited by both members of staff were that round tables were not suitable for the style of teaching they were delivering, which involved long presentations when not all students are facing the front of the room. Prolonged use of the pod for demonstration purpose is difficult on students with their backs towards the projector screen, as they have to follow the demonstration and work on the computer.

5 students returned surveys about their use of AG24A. Three of those students cited the big, circular tables as one of the best aspects of the space with one student describing this as 'computer tables easily convertible to meeting tables'.

Because the room is quite long it was reported that on occasion students at the back of the room are too far back to see what is being demonstrated on the screen at the front. This could have been easily rectified with a second screen further back in the room that mirrors the projection at the front.

8 of the 11 staff interviewed found the flexibility of the room extremely useful, it allowed both staff and students to navigate the room easily, and the round tables and push down PCs made the room more flexible from a multipurpose standpoint than a conventional PC lab. Being able to move through the room and support students was a key factor as expressed by this SHS lecturer "I liked the way I could move around the desks easily between students".

9 of the 11 staff interviewed stated that they would like to use this type of room for teaching again in the future.

### **Timetabling**

There were some issues with booking the room through timetabling. Timetabling is difficult with rooms that don't have a conventional build, they create an anomaly within the timetabling system, it is important for them to be appropriately named, and all university staff need to be aware of the multipurpose use of the room in order to encourage requests.

### **Acoustics, temperature and colour**

All 11 staff interviewed reported problems with acoustics in the room, it is a very long thin room with a high ceiling creating both an echo and making it difficult to be heard at the back of the room. The room was also reported as being cold and the colour was described as 'sterile'.



### Squiggle Glass

The multiple areas of squiggle glass were utilised by 5 of the staff interviewed who found it helped facilitate group work with students and contributed to the room as a flexible space.

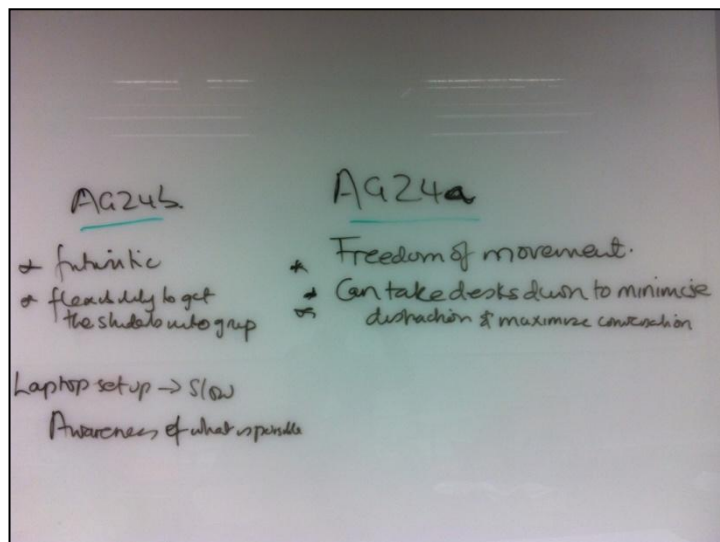
### Showcase space

Journalism staff are using the rooms as a showcase to demonstrate our quality learning spaces to future students at away days.

### AG24B Evaluation Findings



4 Photograph of laptops being used by staff at the open house forum in AG24B



5 Photograph of squiggle glass used during open house forum in AG24B



## AG24B Case Study

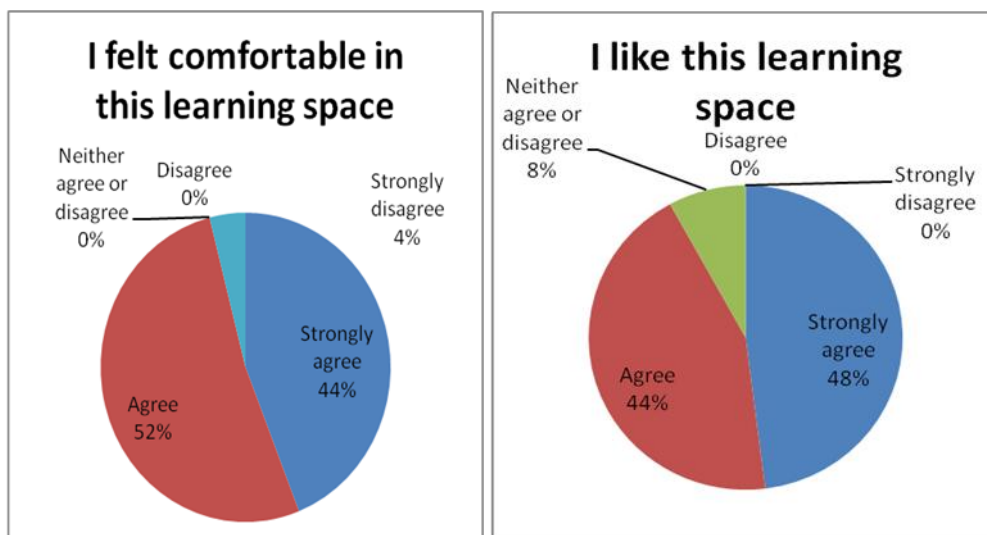
A School of Health Sciences lecturer used this room several times to hold workshops. The lecturer started with a presentation at the front using the pod. The students were then asked to break out into groups. The students would simply drive around in their chairs to one of the squiggle glass boards and start the group discussions. In one particular session, the lecturer asked the students to bring their own mobile devices which worked very well with this room and for her teaching needs. The photographs above were taken during the open house evaluation forum. However, they demonstrate how the node chairs can be used for groupwork with computers and how groups can use the squiggle glass.

## AG24B Findings

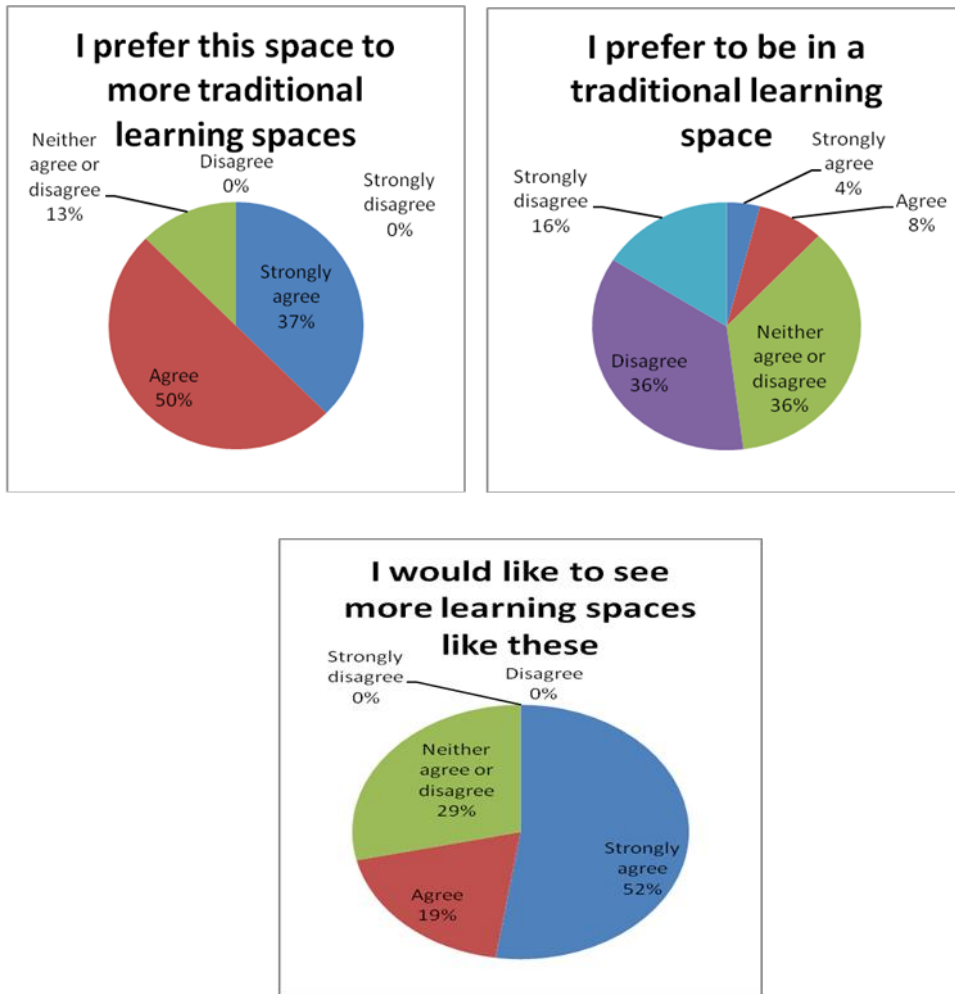
The majority of open house participants, student survey respondents and interviewees were positive about AG24B as a flexible learning space. Above all, the node chairs enabled students to move around the space and group work as well as implementing a variety of activities in a session was well supported. However, there are some key issues that need addressing to improve the space and there are also some learning approaches that it was felt the space did not suit.

### Flexible space

The student survey showed that respondents overwhelmingly found AG24B to be positive and flexible. The majority of respondents felt comfortable, liked the space and were able to concentrate. Also, they predominantly preferred this room to traditional spaces and wished to see more flexible spaces across the university. These charts show the overwhelmingly positive student responses to the survey questions 'I felt comfortable in this learning space' and 'I like this learning space'.



These charts show a significant majority of students surveyed expressing a preference for AG24B as opposed to a traditional learning space and disagreeing that they would prefer to be in a traditional learning space:



The above chart shows 71% of students asked would like to see more learning spaces like AG24B.

Staff also found the room to be flexible. This was enabled by the moveable chairs and also the squiggle glass. Examples of flexibility reported by staff included easily moving from one activity to another such as presentation to discussion and using the squiggle glass for a group activity. One lecturer at the open house reported lacking confidence in moving students into groups yet finding that the node chairs easily overcame this problem. The room was described by staff as 'futuristic' and 'colourful'. Two lecturers at the forum discussed how the sensitive topics they taught were well suited to the more informal atmosphere of AG24B.

Several staff commented on the usefulness of having squiggle glass available on both walls. The node chairs did stand out as key to the flexibility and positivity experienced in AG24B. One lecturer described the node chairs as enabling students to 'shimmy' across the room and another as 'swooshing'. The core issues were being able to easily move furniture, without taking up time, move between activities, enable group work and circulate around the students. Sitting still for long periods of time was reported as problematic and therefore for lectures or long presentations this format may not be suitable.

### **Laptop lockers and bring your own devices**

Unfortunately there were a number of logistical issues that caused the laptop lockers not to be used significantly during the term and therefore limited our ability to conduct evaluations as yet. The main problem involved access to the laptop lockers causing users that had wished to access the laptops to be unable to. Incidents included confusion about how to gain access to the laptop lockers and the laptop locker room being locked with a key by security so that the swipe access would not work. The LDC have now worked with security and IS to put a feasible solution into place. Accurate information on how to access and use the laptop lockers has also been produced and made available in the form of posters on the laptop locker walls. This information will be made more visually appealing and distributed as leaflets and posters in the laptop locker room this term.

AG24 spaces do not appear for open booking on timetabling as they are SHS priority rooms. There has been some difficulty in how timetabling describes this space as they did not feel comfortable labelling it as a computer lab. The double set of doors leading to the space also means that staff walking by did not immediately recognise the potential of this room. Consequently more needs to be done to make these rooms available and ensure staff know how they can be used.

The evaluation open house had a positive impact on boosting awareness and confidence in the laptop lockers. Staff attending were given demonstrations on how to retrieve and return the laptops. They also had the opportunity to use the laptops and share ideas on how they could be used with their students in the learning space. This activity generated a positive buzz about the laptops and enthusiasm about using them in the Spring term. Consequently further evaluation will be undertaken in the Spring term in the form of observations and retrieval of statistical data about usage.

Staff experimenting with the laptops at the open house were able to see a number of applications for the laptops. Using the node chairs they were able to see how they could work individually, in pairs or in groups with the laptops. This usage also still left space for the lecturer or other students to circulate between them and support or share with students. The staff were pleased to find software that they required such as internet access or SPSS already available on the devices. During the forum some staff were able to brainstorm together about activities their students could undertake using this equipment. One staff member from informatics did point out that this room does not have the seating capacity his modules require.

One lecturer attending the open house felt that the laptops were very slow to start and the laptops were heavy and clunky. He felt that he didn't have time to organise the laptops in addition to teaching so would need a quicker way of retrieving and distributing the laptops to students. He suggested asking students to collect the laptops to avoid taking up teaching time.

**Temperature, Acoustics and Colour:** Survey data, open house and interviews revealed the room to be cold and having poor acoustics. There were also comments about the room needing 'more colour' and 'more natural light'.

### **AG24A and AG24B Lessons Learnt**

- The rooms are cold.
- The acoustics are poor.
- The pod can sometimes be slow (this is a wider campus issue).
- The rooms could benefit from more natural light and colour on the walls.
- The access issues with the laptop lockers had a detrimental effect on uptake and confidence in using the laptops.
- These rooms are not easily bookable through timetabling and staff are not always aware that they are available or what they offer.
- More support and inspiration is needed for staff in how to use the rooms effectively.
- Some users experienced feeling uncomfortable in the node chairs after sitting for a long time.
  
- AG24A and B are experienced by staff and students as a predominantly positive and flexible room.
- Staff and students reported that they would like to see further flexible spaces across the campus.
- AG24B has an informal feel , is liked and feels comfortable.
- AG24B enables group work and shifting easily between activities such as presentations and discussions.
- The squiggle glass on walls is generally described as attractive and useful. Having squiggle glass in conjunction with node chairs in AG24B enables group work to happen in a variety of areas across the room. More squiggle glass was demanded in AG24A at the front of the room.
- Node chairs enable flexibility supporting individual, pair or group work as well as listening to presentations at the front of the room. Staff are able to move unhindered through the node chairs to work with and support students.
- Certain types of group work were well supported in AG24A with staff being able to move easily through the room and pushdown PCs giving flexibility.
- The open house evaluation forum increased awareness and confidence in using the laptop lockers and the spaces.
- Staff are on the whole enthusiastic about using the laptop lockers in conjunction with bringing your own devices.
- These rooms are being used as a showcase for future students.

## **AG24A and AG24B Evaluation Recommendations**

- Staff and students benefit from these flexible spaces and would like to see further flexible spaces being created at City University London.
- Creating flexible spaces on a larger scale, with more node chairs and available laptops, or more circular tables would suit the needs of staff who teach larger cohorts.
- The temperature needs improving.
- The acoustics need improving.
- The light and colour in the rooms needs improving.
- AG24B also needs promoting as a flexible space that can accommodate the use of students' own devices or borrowing of iPads from other areas in the University.
- Photos and descriptions of rooms should be added to the timetabling system (both for the benefit of timetabling officers as well as administrators and academics that need to book rooms appropriate to their teaching). Rooms also need to be named functionally in a way that helps users define the type of room they are booking.
- In long rooms it is important to ensure that all students can either see the screen at the front of the room, or have access to a screen that mirrors what is happening at the front.
- Laptop locker access may need reviewing to explore the possibility of students collecting laptops themselves to reduce time taken up by staff undertaking this themselves.
- Further evaluation needs to be undertaken in the form of observations and other methodologies to explore the use of laptop lockers now that original access and awareness issues have been resolved.
- Guidance should be made available in the rooms to give support and inspiration for those using them.
- The spaces and laptop lockers need promoting further to encourage fuller usage.
- The open house forum was a positive event for raising awareness and confidence in using a space and could be considered as a method to accompany the renovation of all new spaces.

## **Outcomes**

This report was widely circulated through groups and committees within City University, London. Feedback was received and action has been taken and is planned in all the areas listed here as recommendations. Property and Facilities (PAF) are already working on improving the temperature and acoustics in the rooms. It isn't possible to increase the amount of natural light but work is happening to add colour and use paint to change the atmosphere in the rooms. There are also plans to install a second screen in AG24A to ensure all students can see the screens. These changes will significantly positively impact on the rooms.

LDC and PAF are also working on producing guidance for using the furniture and equipment in these rooms. Descriptors and information on timetabling will also be updated to ensure staff know what to expect in these flexible rooms and how to make the most of the furniture and equipment provided. Evaluation, particularly in the form of observations, is planned for the coming term and is expected to be ongoing. The laptop lockers will require further attention to overcome access and low usage issues. This will include raising awareness of where they are and how to use them, undertaking observations and reconsidering the access process.

PAF and LDC are working on ways to gain feedback about learning spaces and give staff inspiration and support in using the furniture and equipment such as further open houses and using text to send comments about rooms. PAF are creating a flexible learning space in each building on campus and will apply the principles of flexible, collaborative, interactive learning in every newly built small space. In September 2013, a lecture theatre with swivel seating, sockets and dual projector screen will be ready for use. This will mark positive collaborations between departments at City University London in designing flexible learning spaces and enable exciting developments in larger group learning to take place.

### **Conclusion**

The survey results and staff feedback presented here demonstrate that there is a need for further flexible, innovative learning spaces at City University London. In particular, alternative computer labs are needed to accommodate group work, moving between activities, and students bringing their own devices to class. These flexible spaces have been received positively and a number of lessons have been learnt. Improvements have already been made. Further evaluation of the spaces have been proposed in the form of observations. Ethical approval has now been obtained and observations of the rooms should take place in the coming term.

All future smaller spaces at City University London will adhere to flexible space principles and draw on learning from this evaluation. Specifically this will involve the creation of bright, vibrant spaces with movable furniture and equipment that supports interactivity, collaboration and movement between activities. They will also foster the anticipated increased use of electronic devices within the learning space either provided by the university or students' bringing their own.

### **Report and Evaluation Credits**

This report was authored by Anise Bullimore (LDC), Kate Reader (SASS), and Ajmal Sultany (LDC)

The AG24A and B surveys were carried out by Julie Attenborough (SHS)

The AG24A and B interviews were carried out by Ajmal Sultany (LDC)

Other aspects of the AG24A and B evaluation were undertaken by Anise Bullimore (LDC) and Ajmal Sultany (LDC)

Surveys of computer room usage and teaching needs were carried out by Annemarie Cancienne (LDC)