

**Ethnographic case study: perceptions of three new learning spaces  
and their impact on the learning and teaching process at the  
Universities of Sussex and Brighton**

*commissioned by CETLC, Universities of Sussex and Brighton, and CETLD,  
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## *Introduction*

This tripartite ethnographic case study investigates staff and student experience of undergraduate teaching and learning on design courses in three new, specially-designed spaces at two UK universities. It explores the themes, and applies some of the methodologies of research and data analysis, set out in the preceding Literature Review. Although the scope of the study was strictly limited, in terms of timescale, sample sizes, and range of respondents, it has nevertheless generated, through an explicitly selective, detailed, and qualitative research approach, a surprisingly extensive coverage of pertinent issues.

These are summarised in a set of findings which highlight some valuable points for further study and consideration in this field of inquiry, and constitute a significant counterpoint to the recent emphasis on the role and significance of technological innovation in shaping new models of teaching and learning in post-compulsory education. This study seeks to shift the emphasis to a consideration of the role and significance of physical space itself, combined with social and cultural factors in the learning environment, in the process of re-shaping pedagogical paradigms. As teachers and students of design, we must have faith in the history and power of space to model and re-generate social and cultural values and ideals; yet at the same time, social science research constantly reminds us of the volatile nature of social dynamics and its ability to elude determination by spatial factors.

This study does not set out to measure the *actual* impact of new, technology-supported and enhanced, spatial models in the educational environment on learning outcomes and results. Rather, the aim and objective was to explore student and staff *perceptions* of the impact of such spaces on their own personal and collective experiences of such spaces. As such, it represents a very modest contribution, at a comparatively microscopic scale of detail, and specifically within the field of education, to an expanding pool of knowledge around the interaction between the spatial and the social.

The Literature Review underlines the lack of research to date which focus explicitly on the role of space in the learning environment, and highlights the need to look to a range of different disciplines for relevant models of research and analysis in this field – from social anthropology, architectural theory and human geography, to environmental psychology, education studies, and healthcare research. It pointed out that most recent studies commissioned within the field of education have focussed on the role of technology and overlooked the significance of physical space itself. However, the new JISC/ JELS report from the Learning Sciences Research Institute at the University of Nottingham (2009; see Lit Review p4) presents a review of evaluation procedures which are increasingly being implemented across a range of HE institutions in order to explore the role played by spatial factors in the learning process.

Compared to some of the techniques surveyed in the JELS study, the research methods applied in this study were not innovative in themselves, but were based on tried and tested qualitative, ethnographic methods used by anthropologists to investigate the social and cultural world – primarily

observation and interviews with respondents, complemented by photographic documentation. The research programme specifically avoided the use of surveys, questionnaires, or statistical measures, and a semi-guided interview approach was used to allow flexibility in the process of listening to and responding to respondents. The major part of the time allocated to the project was spent on collecting data, leaving a relatively limited period for analysis of observation notes, transcribed recorded interviews, and photographs. The analytical process was therefore based on a simple, partly intuitive, interpretive approach to the data, sorted into codes or categories emerging from recorded material which had in turn been partially structured by the design of the interview guide (see Appendices). No data analysis software programmes were used in the process.

In these terms, the research methodology used was close to the process of Interpretative Phenomenological Analysis, or IPA, which has gained currency in healthcare research (see Lit Review pg 12). As in traditional social anthropology, IPA recognises the speculative, intuitive character of data interpretation by the individual researcher (or ethnographer), and the subjective dimension of this process. This may also be termed 'authorial voice', and reflects the particular experience, skills and insights of the researcher concerned. While this study aimed towards objectivity in the recording of observations and responses, and to create a platform for the voices of staff and students involved, that process should therefore also be understood as the work of one particular individual, and potentially allows scope for re-interpretation of the data in future.

Having said that, there are close correlations between the basic findings of this study and those which are cautiously forwarded in the JELS report as 'some aspects of learning space design that appear to contribute to effective learning' (Pearshouse et al, 2009, p 24). These may be summarised as:

- Flexibility and potential for reconfiguration enabling different scenarios
- Design to meet intended use, including particular scenarios to be deployed and identities of teachers and learners
- More than adequate, efficient infrastructural provision (especially lighting, air conditioning, mains provision and networking sockets)
- Implementation of professional guidelines especially regarding acoustics and audio delivery
- Consideration of location and context of space in wider setting
- Consideration of legibility of the design to support and guide learners

As the authors state, these have not yet been subjected to comparative evaluation or to rigorous analysis, but the findings of the Sussex/ Brighton study offer one comparative starting-point. The data collected in this study draws attention to all of these features, in greater or lesser part. However, their desirability in the design of new learning space is also, to an extent, accepted as a given. What the study is more concerned with is *how* the new learning spaces, incorporating these features, shapes

the learning process, or, rather, how they are perceived by users to do so based on their own experience. This is not, therefore, a hard and fast scientific assessment, but a speculative proposition based on interviewees' personal responses, and one that also brings to the fore larger issues around the culture of higher education.

The key issues revealed by this case study may perhaps be summarised as: visibility, access to, and ownership of the learning space resources. The data suggests that new learning spaces may be designed with all the appropriate features to meet the criteria specified for effective, technology-supported or enhanced learning, but if they are not visible and accessible to students and staff, due to physical dislocation, lack of public frontage, over-complicated technology, lack of staff time and expertise in using it, or institutional and cost constraints, their use and effectiveness is limited. In particular, technology, which could be seen as the *raison d'être* of the new spaces, had the potential to hijack the ethical models around teaching and learning that the new spaces were designed to promote. Moreover, students may feel cheated of resources that they have come to expect as part of the educational package for which they pay their fees, and this in turn tests the relationship and goodwill between the student body and the institution. On the other hand, the findings may also be interpreted to suggest that some students on undergraduate courses lack the maturity and/or motivation and initiative to engage fully with sophisticated spatial and technological resources - while this in turn may be understood as a result of the increasing institutionalisation of the university setting and pressure on students to start degree courses earlier than in the past.

Another issue, arising from this researcher's personal experience, related to the relative difficulty of recruiting respondents for the project, particularly among staff members. While this partly reflected the fact that the programme kicked off at an awkward time of the year, shortly before the exam period in the summer term, it also seemed to suggest both a certain lack of awareness of the aims and objectives of the Teaching and Learning research centres in general, and of their place within the wider university setting, and a sense among staff of being overwhelmed by other institutional responsibilities and therefore unable to contribute to extraneous, non-essential research activity. It appeared that some staff were lacking in either time or interest, or both, to engage with and enlarge their experience of innovatory teaching practices and settings and that this, in addition to the spatial factors under investigation, was an issue which might also be fruitfully addressed.

In other words, while the findings highlight the significance of spatial factors in student and staff experiences of the learning and teaching process, they also underline the importance of further considering the social factors at play and the characteristics of the institutional framework within which the teaching and learning process takes it place and the current pressures on universities to become increasingly cost-effective.

### 1. *defining the subject of ethnographic inquiry*

Ethnographies typically investigate specific social groups/ communities of people, identifying key factors and influences (kinship structures, belief systems, place-making practices etc) in what makes them cohere as groups and behave in the way they do. This study is inspired by ethnographic methods, but focuses on a non-traditional social group defined by the organisation/ institution which the members, from diverse though probably not radically dissimilar social backgrounds, belong to. The institution in question is the university, ie an organisation dedicated to teaching and learning at an advanced level. Students belong to the community which it frames for a relatively short period of 3 + years, though staff may belong for much longer and develop strong ties.

The aim of the study is to investigate what influence is played by the physical spaces of the institution in question – in fact two universities, Sussex and Brighton - on the way that its members behave and respond to each other and in relation to the education process which brings them there, and how they cohere as a collective group. In the broadest sense, it investigates the significance of the institution as a physical place and entity, as well as a social structure and setting, on social behaviour, interaction and experience at individual and collective level, and how physical characteristics of the setting may define a sense of collective and individual identity and purpose specifically in relation to the process of delivering and acquiring education in post-compulsory education.

This study focuses in particular on the role and potential of *innovative* types of learning spaces, supported and enhanced by technology, to affect the education process and the experience of users.

### 2. *defining the territory of the ethnographic inquiry: physical and institutional setting*

The territory delineated for this study has been closely confined to the three new, technology-supported teaching spaces created by and for the two Centres for Excellence in Teaching and Learning established at a) University of Sussex in partnership with University of Brighton (CETL in Creativity, also known as InQbate) and b) Faculty of Arts and Architecture, University of Brighton, in partnership with V&A Museum, the Royal Institute of British Architects, and the Royal College of Art (CETL through Design).

These two CETLs are separately funded (by HEFCE) and run; however, this study is a jointly-funded, collaborative and comparative venture between the two, embracing three spaces at different locations in and around the city of Brighton:

- i. InQbate Creativity Zone (IQCZ), Pevensey Building, University of Sussex campus
- ii. InQbate Creativity Centre (IQCC), Cockcroft Building, University of Brighton Moulsecoomb campus (comprising Leonardo, Galileo and design studio spaces)
- iii. CETL-D room, office and café, Grand Parade building, University of Brighton Faculty of Arts and Architecture

The research has been carried out during teaching sessions and interview sessions at these sites, with comparative observations conducted in immediately surrounding areas and nearby 'traditional' teaching spaces:

- i. Engineering 3 Workshop, and Ideas Lab seminar room, Sussex campus
- ii. computer lab, Cockcroft building
- iii. seminar room, Grand Parade

### 3. *the ethnographic sample and research methods*

The majority of the individuals involved in this study appeared to be native English speakers. They were a mixture of staff (5 in total, two female and three male), and students (15 in total, including 6 female and 7 male, most of whom were around 20 years of age, with the exception of 3 from CETL-D) from each site.

The respondents for CETL-D included:

- a male architecture tutor (T1), based mainly in the School of Architecture on the Moulsecoombe campus, teaching an extension studies (optional extra) course to a multi-disciplinary group of students called Edible Campus;
- one of his female students (FS1), a mature student with extensive experience of studying in other HE institutions since the 1970s, now in her second year of an MDes in Wood, Metal Ceramics and Plastics;
- a female tutor (T2), in the post of Higher Education Officer at CETL-D, but based at the Victoria and Albert Museum, who teaches two level 2 optional modules to second year History of Art/ design students: Breaking into the Museum (museum studies), and Creative Writing for Design. 13 years previous teaching experience, initially language-based, in many different places;
- 4 female Year 2 History of Art students on the Museums course (SFG3), three of which were technically 'mature' students, having studied at other HE institutions previously, including one in Denmark. Three of these had in fact entered the course directly at Year 2 level, and so had only been at the university for a few weeks before the interview; only one had been through first year.

The respondents for InQbate Creativity Centre (IQCC) included:

- the Centre Manager, a male staff member (T3), who has a background in yoga, fine art and education;
- a male Product Design tutor (T5), with previous experience of teaching in schools and seconded to the Centre for Learning and Teaching for a couple of years;
- a second year female engineering student (FS2), interviewed at Grand Parade, who had organised an exhibition in Leonardo;
- 5 second year BA students (SFG2), including one female, from Product Design, Design Technology, and Sports Design; none with previous HE experience

Respondents for InQbate Creativity Zone (IQCZ) included:

- A female Tutorial Fellow in Product Design at Sussex since Jan 08 (T4), also employed at Brighton as Visiting Lecturer in Product Design;

- 4 second year BSc Product Design students, including one female (SFG1): none with any previous HE experience

Summary of respondents:

CETL-D	IQCC	IQCZ
T1: male architecture tutor T2: female museum studies tutor and Higher Education Officer in CETL-D, based off-site FS1: female design student SFG3: History of Art student group doing Museum studies course, 2 <sup>nd</sup> yr	T3: male design tutor and Centre Manager T5: male design tutor FS2: female engineering student SFG2: product design student group, final yr	T4: female design tutor SFG1: product design student group, 2 <sup>nd</sup> yr

The tutors were identified as potential respondents in discussion with the project directors, and approached directly by the researcher to participate in the research. They were asked to invite volunteers from the student groups observed in their teaching sessions to contact the researcher directly if they were interested in participating in an interview. Student respondents were therefore essentially self-selecting, and this was reflected in the fact that nearly all of them were articulate and confident in expressing their views. Interviews and focus groups were co-ordinated mainly by email. At the Cockcroft site a flyer inviting students to participate was produced for display in the Creativity Centre, but achieved no response. Students were mainly interviewed in three groups of four or five, with the exception of two individual students who were each interviewed separately. Tutors were interviewed individually and three of them were interviewed together on a second occasion.

The course of observations and interviews was launched in early May 2009, with a forced hiatus during the examination period which started 5 weeks into the summer term, and the three-month summer recess. These factors made the task of engaging participants in the process relatively challenging. Data collection was resumed and completed in late October/early November 2009 at the CETL-D and Cockcroft sites.

Data collection, comprising a combination of visual and verbal material, was carried out through:

- notated observation of teaching sessions: IQCZ 4.5 hrs; IQCC 5 hrs; CETLD 4 hrs
- recorded and transcribed individual interviews and focus groups, using semi-guided interview schedules: IQZ 2.5 hrs; IQC 1 hr 40m; CETLD 2 hr 25 m
- photographic documentation by researcher with a small digital camera
- use of a sensor-operated digital camera by researcher at the two InQbate sites, which produced a mass of visual images captured at intervals of up to a minute, prompted by peripheral movements sensed by the device.

The data is presented in two forms:



1. detailed comparative descriptions of setting and occupation based on the researcher's observation notes and photographs, which convey the researcher's personal impressions and experience of the site on one or two visits only. The researcher had no previous experience of any of the sites in question, nor of any other innovative learning spaces in any other educational institutions, but extensive experience of visiting, observing and analysing other built spaces and their occupation by users. These descriptions are not intended to provide a detailed specification of the spaces, which can be found in InQbate and CETL-D's own reports.

2. Staff and students' own reports of their personal and collective experience of the sites, drawn from interview data, sorted into thematic categories by the researcher, and drawn together within the framework of the researcher's commentary. NB quotations used from focus group sessions are not differentiated by speaker, except to indicate between male/female speakers.

The thematic interpretation of the data was prompted in part by the themes foregrounded by the preliminary literature review/ digest (conducted March – April 2009), but largely emerged from the data itself. The categories used for sorting the data were:

- sensory qualities
- spatial/ material qualities
- social interaction
- tutor/student relationship
- technology
- status/image
- institutional framework
- impact on teaching and learning

These have been used in a simplified form to organise the presentation of the data in this document (see Contents).

#### *4. the institutional setting*

The decision to invest money in the design and construction of new learning spaces by Sussex/ Brighton CETL-C (InQbate) was inspired by the desire to explore '*the application of technology to encourage and augment creativity and creative approaches to teaching and learning and creative practice in areas of engineering, design and computer science*' (InQbate report 07-08), with a specific focus on the physical setting. At Sussex, a university founded on liberal principles of education in the 1960s, with a purpose-built, architecturally-acclaimed campus designed by Sir Basil Spence, the primary ideas were to promote interdisciplinary activity and an arts approach to non-arts disciplines. The design of the InQbate Creativity Zone space, which was converted out of an old concrete, windowless shed, was specifically designed to support contextualisation of learning materials, presentational delivery, group discussion, reflection and socialisation, drawing, prototype assembly and user testing, presentation and critique, and exhibition performance. The idea was to create an effective, flexible, audio-visual space that would use sound, images, texture and even smell to foster creativity amongst students and staff. The design of the InQbate Creativity Centre at Brighton was

inspired by the same general aims (the two projects being coordinated by one centralised committee), but with an emphasis on different aspects, and, particularly, a lesser emphasis on the technological components. It was conceived as 'a kind of laboratory' for exploring how 'flexible and technologically rich spaces can affect learning and teaching' (InQbate Brighton Centre for Creativity, 18-month report, 30.04.09), and was converted out of existing top-lit spaces behind the large 1960s-built Cockcroft building (Moulsecoomb campus).

The conception of the two creativity zones was originated and developed by Product Design course leaders from both universities, in conjunction with the Informatics Department at Sussex University. As the projects progressed, they have gradually diverged and taken their own paths and evaluation procedures. Brighton Faculty of Arts and Architecture developed its own CETL through Design independently, with partners from other educational/ workplace based organisations, as the basis for the development of original research into the question of how much space 'matters' in how we teach and learn (<http://cetld.brighton.ac.uk/projects/current-projects/learning-spaces>), with a view to making an impact on issues of learning spaces in art and design nationally and internationally. The CETLD room and café were converted out of existing spaces on the ground floor of the Grand Parade campus near the centre of Brighton – the old Student Union shop became the CETL-D room, and the under-used foyer space to the Sallis Benney lecture theatre became a café, with a new extension to house the canteen, forming a third side to the quad.

Interviews with staff and students revealed a general sense that university education has become more constrained and regulated by institutional frameworks and targets, and highly focussed on developing skills for the jobs market. This was articulated by students and staff alike, but most explicitly by FS1, a mature student who had had considerable past comparative experience of higher education since the 1970s in a number of different institutions. She summed up the current culture as '*tick-box orientated*', suggesting that the scope for staff autonomy and creativity in their teaching practice has been reduced, and that students are treated '*more like children, less like adults*' – terminology also used by SFG1 - with clear boundaries between staff and students, and less independence to structure and develop their own work. Courses are heavy on paperwork, for both staff and students, and (design) students may be frustrated, because they '*want to get out and make things*' (FS1). There was a perception that social interaction within the institution among students has also decreased, and the facilities to enable those interactions (eg student bar) are less common (FS1). It was striking that all student respondents expressed enthusiasm for opportunities to mix both with other students across courses and year groups, and to meet outside visitors within the university context. Both appear to be facilitated by the three new learning spaces in question which play a significant role in loosening up institutional boundaries in a way which is appreciated by students; however, they are at the same time perceived as being quite tightly bounded by institutional frameworks, and

their 'place' within the university system, in a way which effectively limits access to the resource and creates a sense of exclusivity around it.

The students' comments on the new learning spaces also highlighted the value they placed on the discursive, interactive nature of the teaching conducted in them, described as 'learning' in opposition to 'education' by focus group 3. They noted the way in which the sessions encouraged students to feel that their own opinions and take on the teaching material were of importance and interest, in contrast to standard university teaching procedures which emphasised the acquisition of quantities of knowledge in forms which sometimes seemed indigestible, and did not necessarily invite or facilitate feedback. Tutor 5 noted that the aim was to produce students who were ready for jobs and professional life, but also confident, articulate and critical with regard to their own work and that of others. It seemed clear that while new teaching methods were emerging, the opportunities to engage with them fully were still restricted to some extent by the shortage of suitable spaces and resources.

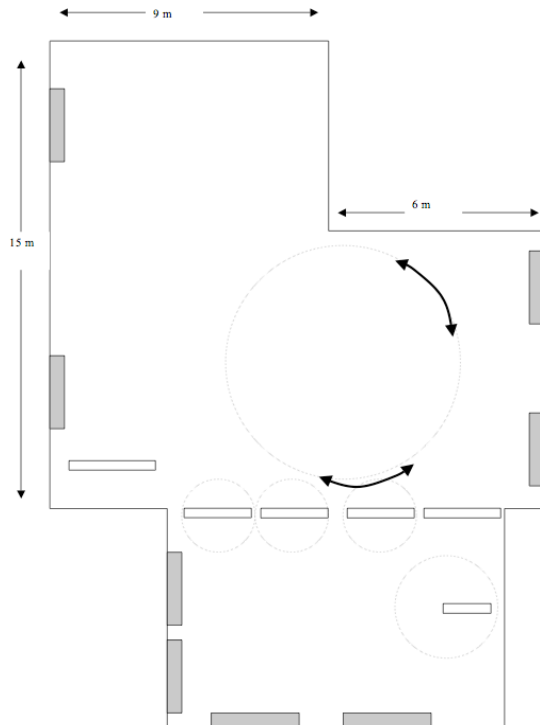
For staff, the sheer lack of physical space in any form on university premises available for teaching in was a key issue. Booking systems had become all-important to ensure access to space, and all tutors expressed anxieties about accessibility of suitable teaching venues. Tutor 1 revealed that he had initially been obliged to use a community hall on a local housing estate to teach the Edible Campus extension study course which he subsequently taught partially in the CETL-D room at Grand Parade. Staff also seemed to value the opportunities which the new spaces offered for more discursive and informal types of teaching, over and above the technological hardware which they provided, which appeared to be secondary in their priorities.

Some staff indicated however that, notwithstanding the new teaching methods, a shift in student mentality had occurred towards an '*obsession with marks*' (T5), and a reluctance to take risks in their learning processes that might jeopardise concrete results at the end of a course, even where they might be of importance in their personal development. This could be attributed to increased awareness of the cost of learning, and the vital importance of being employable at the end of a degree course in order to pay back student loans. Staff stressed the need for students to become more self-directed, creative and critical, but there appeared to be some conflict between these values and the values imposed by the larger cost framework of high education and the institutional audit system which are not necessarily easily resolved.

5. *the physical setting:*  
*spatial layout, furnishing, colours and materials, and technology*  
(description based on researcher's observations)

### 5.1 InQbate Creativity Zone

see Images, figures 1 - 12



*Fig 1 Plan: the main InQbate space is a square measuring 15m x 15m (office in top R corner not shown on plan), which can be subdivided. Entrance is at bottom R corner. The plan shows the arrangements for pivoting screens which divide or open up the space, and the location of plasma screens, with the exception of the larger screen in the smaller space to the right.*

The InQbate Creativity Zone space is located at the back of the Pevensey II building on the University of Sussex campus. Pevensey II is a newer, undistinguished building on the Basil Spence-designed redbrick campus. It lies away from the main axis of buildings on a higher level of ground, and directly in front of a large carpark. It is reached by a steep flight of steps, from the top of which is an extensive view over the rooftops of the older university buildings towards green hills in the background.

From the entrance hall, Physics is signed to the right, and the Creativity Zone to the left. The route to the InQbate space passes along an L-shaped internal corridor lined with cupboards, lockers and doors, and broken up with fire doors. Temporary green signage on paper marked with the InQbate logo indicates the direction. The InQbate space is located next to the InQbate office, which looks out over grassy banks to the back of the

building. InQbate has its own separate access to the back, which is signed from the carpark. It is part of a linear arrangement of rooms running along each side of the corridor.

InQbate is entered at the corner of the space, into a semi-enclosed vestibule which contains kitchen units and storage cupboards, a number of fire extinguishers and other bits and pieces, giving little impression of what lies beyond, or of the purpose of the space. This area gives into a rectangular foyer zone off which the main activity zone is entered through a series of folding doors in a floor to ceiling-height, white-painted partition. The foyer area is quite well daylit through glazed double doors leading outside. The walls are white, and the jigsaw-tiled floor light in colour and reflective. There are two small plasma screens hanging off two of the walls at right-angles to each other, underneath which are two pairs of light-topped tables with metal legs, and a jumble of other bits of furniture – stools, a ladder and, in the corner, an upholstered cane-woven armchair placed on a circular rug, and a polished side table with a table lamp and radio on it, that look as if they may be left over from some past theatre production.

By contrast, the main space, which is designed to be used for projections and with adjustable artificial lighting, is not usually daylit, although it could be. Curtains and moveable screens are used to cover the windows around three sides to the exterior, to allow special lighting effects to be produced. The space consists of two square-shaped, connected areas, one larger than the other, and divided from each other heavy pivoting panels which can be opened or closed to suit individual arrangements. The smaller one is dominated by a large screen at one end, next to which is a door to an office from which the technical support staff can operate. It is furnished with stackable chairs, some stools, and another wicker armchair and side table at the back. The larger space (15m x 9m) is empty apart from a pile of white beanbags, a fold-down table on one side, a small white round table in one corner with pens on it, and whiteboards forming a screen around the edges in front of the white curtains and windows behind. Four small plasma screens are suspended from the perimeter walls. The ceiling throughout is an open metal gridded gantry for lights, projectors and other technology as required, the whole space being designed to facilitate the creation of special scenarios for more immersive styles of teaching.

## 5.2 InQbate Creativity Centre, Cockcroft

see Images, figs 13 – 26

insert plan here when available  
space is 10 x 13m in size

The Creativity Centre is highly '*embedded*' (FS2) on the top floor within the Heavy Engineering block at the back of the large Cockcroft building. Cockcroft houses the engineering and product design components of the School of Environment and Technology, including the Centre for Design Technology, in addition to the School of Pharmacy and Biomolecular Sciences

and the Collaborative Training Centre (all part of the Faculty of Science and Engineering), the Student Union and café, a Blackwells bookshop and cafe.

The Creativity Centre is reached at the end of an extended walk through the building, and up to the top floor. From the front entrance reception area off Lewes Road the visitor climbs the stairs ahead, walk through a cafe and past a Blackwells bookshop, and take the stairs or lift up a further two floors. From there you turn right along a narrow, functional corridor lined by doors and lockers to the end, where an steep, open metal staircase, in contrast to the solid concrete staircases in the rest of the building, takes you up to an open landing. That this is the threshold to the Creativity Centre is signed by the presence of a large sculptural installation on the landing, although in other ways it appears no different in visual and material terms from a standard modern university environment.

The extended route through the building is marked by printed paper signs pointing in the right direction, which are roughly stuck to the walls. There is no permanent signage, although the Centre has been in operation for two and a half years (since March 2007). It does not appear to have high visibility or profile within the building; rather, it presents as a resource which is absorbed within a complex of others on the site and is not strongly differentiated from them.

The Creativity Centre comprises the main Leonardo space, on the right, a large design studio, used as a work base by final year design students, on the left, and Galileo, also to the left, which is a smaller space used for screening presentations, CAD demonstrations etc. It has a connecting door to the studio, and a video link to the larger Leonardo space. The spaces are described by staff as being 'co-located' with each other, which describes physical proximity but not operational integrity. They are not clearly marked or differentiated. Straight ahead across the landing, and with two square glazed hatches onto it, is a small office which provides a base for the academic and technical support staff who run and service the Centre. There is no clear visual announcement of its presence as a reception point for the Centre.

Only by peering through the glass panels in the standard double-doors which open into the Leonardo space is it possible to discern that this may be the Leonardo space. The key indicator is the presence of yellow, orange, red and blue beanbags on the floor, against white walls and track-mounted whiteboards, and greyish-blue carpet tiles. Also discernible is a large curved screen in the far corner. The entrance door is located in the opposite corner on the diagonal, so that the focal point of the room is situated at the farthest point from it. It is a large, square space (10m x 13m in size), largely unfurnished, with windows extending the length of each wall at either end, which are partially screened from the interior by moveable screens. The windows looking out to the back of the site are glazed with obscured glass, which glows green from the foliage and vegetation outside. The windows on the other side command extensive views over the Cockcroft building, the town, and towards hills on the horizon. In between the windows and the screens, stacked chairs, folded chairs, extra beanbags, and a Giant Connect

4 coloured plastic game stand ('the classic game of counter strategy') are stored.

Despite the high level of daylight offered by the extensive peripheral glazing, the interior of the space seems relatively shadowy, and artificial lighting installed in concave silver-lined reflectors in a low false ceiling is permanently on, offering different combinations of hues to vary the ambience as required. The false ceiling conceals a large skylight which was the main feature of this space before its conversion, and replaces the natural toplight which it offered with controllable lighting effects. It also allows for the installation of other technical apparatus, in particular a significant number of suspended projectors for visual presentations. The 20 moveable whiteboards, which are covered with traces of ink which has not been properly removed, reflect both daylight and coloured light from the ceiling within the space, and can be moved into any number of different positions on the grid of floor track to create spatial (though not acoustic) subdivisions and multiple focal points for group work in clusters.

Overall, the visual evidence of technology in the space is not extensive. A computer and tangle of cables is located on the floor under the large wall space furthest from the entrance door which is used for projections. A keyboard and mouse lie loosely on a white plinth beside it. The large floor to ceiling curved screen adjacent to this is apparently not properly operational. The technological infrastructure is situated in the adjacent office, but can be managed via a wall panel by the door, through a system from AMX which is designed specifically to simplify the way people interact with technology in a range of different settings, including the home.

A number of large pot plants in white pots on wheels are dispersed around the space, with one on either side of the door, framing the entrance. The label still hanging off one describes it as a '*Bold and attractive foliage plant for a stunning focal point in a room.*'

Galileo is a smaller narrow space (6 x 8m), which is entered from a position behind the main presentation screen and in full view of any audience seated inside, orientated towards the entrance. Seating provision consists of red upholstered white plastic office chairs which can be arranged roughly in rows for viewing presentations, including 3D CAD demonstrations. The large windows behind, at the end of the room, can be blacked out with pull-down blinds, but there is a glimpse of daylight through the pitch of the roof above. There is a projector overhead. Whiteboards are fixed to the white walls on both sides of the room, with larger, full height boards on the wall to the left of the main door. The floor is carpeted with blue carpet tiles. There are a couple of standard office tables under the windows, and another one to the side.

### 5.3 CETL-D room and cafe, Grand Parade see Images figs27 - 38

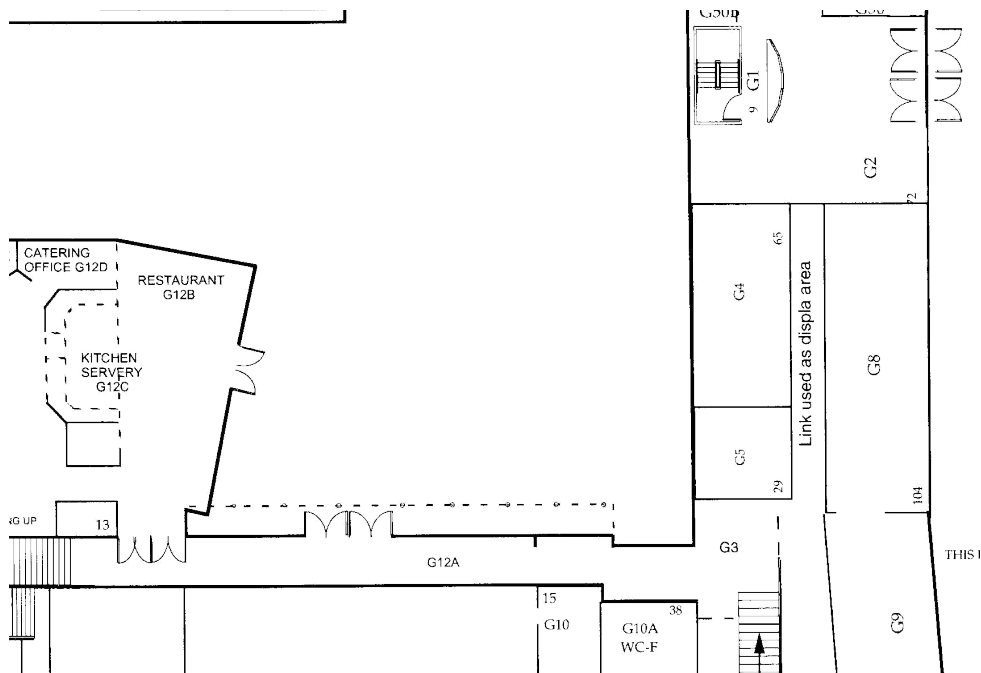


Fig 2 extract from ground floor plan, Grand Parade campus, showing CETLD room (5.3m x 10.6m) and office (5.3m x 5.8m) at G4 and G5, off link corridor, and café at G12A. Main entrance and reception are at top right corner of plan, and public gallery is at G8. The Sallis Benney lecture theatre can be entered from the café space.  
DRAWING IS NOT TO SCALE

These two spaces, plus the CETL-D office, were developed together on the ground floor of Brighton University's Grand Parade site, where they form part of a spatial sequence, together with the canteen and main reception area, surrounding the quad on three sides on the ground floor of the building. The façade to the quad is mainly glazed, creating a sense of connectivity and permeability between the interior and exterior, and high levels of daylight inside these spaces of the building.

The CETL-D room and adjacent office, which is separated from it by a glazed partition, are located on a key corridor leading from the reception area past the public gallery (fronting the road) to the main stairwell, café and lecture theatre. The canteen is located at right angles to the café at the far end, where there is also an exit to the building. Thus the café also channels a considerable amount of circulation through the building.

The café is a large, airy, linear space with full-height glazed windows and doors to the quad. Colours are very neutral, with white walls and pine-veneered tables and chairs with stainless steel legs, but sunlight creates a pattern of shadows - window mullions and suspended light fittings - on the high back wall to the lecture theatre. The servery is sited at the end closest



to the CETL-D room, with the rest of the space given over to tables lined along both sides, which are usually occupied with groups of people or individuals, meeting or working on laptops, especially since the space is equipped with wireless access to the internet. The idea was that the café could be used for informal teaching activities, and was designed with this in mind. It presents a clean and orderly, 'designed', modern image, reflected in the good quality coffee and other refreshments which are available.

The CETL-D room fits with the same image. It is an almost transparent space, with a glass display cabinet forming part of the party wall to the corridor alongside the glass-panelled double entrance doors. The corridor is constantly traversed by people making their way to and from the reception area to the stairs and café, some of whom glance into the room as they pass by. The cabinet itself is used to display publications and other material relating to design. The interior of the room is clearly visible through the cabinet, and so too is the quad, through the windows on the far side. A number of square, mainly red-topped, café-style tables are arranged around the room, on a shiny, dark brown, parquet floor, with black and white moulded plastic chairs with steel legs. The red, white and black colour scheme is orderly and seems to make references to Rietveld. There is one larger table capable of seating 8 people at a time. There is a fairly large screen on the wall at the far end, mounted against white built-in cupboards, and a flat-screen computer on a side table fixed to the wall. Banquette seating, upholstered in grey, runs the length of the windows, which have white venetian blinds to screen the room from sun and heat. At the end adjoining the office, there is a display area for magazines, with windows above looking into the office. A flip-chart stands near the door.

#### 5.4 summary comparison

The CETLC spaces are both located at the back of science buildings, converted out of existing spaces that are not immediately accessible to users who are not 'in the know', or to the public. The approach to the spaces is not well-signed or announced, so that they have an 'embedded' feeling within a strongly institutional context. CETLD is much more visible, accessible, and public, forming part of a series of public spaces on the ground floor of the building, including a busy public gallery. IQCZ and Leonardo have strong similarities in terms of their interior design and scale – deep, square, white or mainly-white, empty-looking spaces entered on the diagonal from a corner entrance which does not provide a ready view into, or advertise the space, whereas CETLD is smaller and comparatively linear in shape, with a centrally-located entrance giving a view straight through it and out to the quad beyond.

IQCZ is a highly introverted, artificially-lit space, inspired by models of theatre design. Even though windows were cut into the three external walls, they are usually curtained off, while perimeter screens of whiteboard create another layer of insulation between interior and exterior. Leonardo, by contrast, has significant levels of daylight and extensive views out, from windows on two sides, although these are also partially screened. The large skylight however was replaced by a false ceiling with an elaborate artificial

lighting system specifically designed to alter the colour scheme from daylight to other hues in the room. Brightly coloured beanbags and plants also introduce notes of strong colour into the space, whereas IQCZ is predominantly white and reflective in its surface qualities and textures – a harder, more clinical ambience when not 'dressed-up' for special events, including use of zonal coloured lighting.

Both IQCZ and Leonardo are equipped with beanbags and stackable chairs, and can be subdivided with moveable screens, but Leonardo allows for more permutations and more intimate subdivisions on a smaller scale. CETLD has no internal screens, and no beanbags: it is a predominantly daylight space, with moveable tables and chairs in red, white and black providing a café-style ambience.

Both CETLD and IQCZ are equipped with a sizeable projection screen as the focus for presentational delivery, but IQCZ also offers a number of smaller subsidiary screens arranged around the perimeter of the space, and a complex technology delivery system installed within a ceiling-height grid of services and adjustable lighting. Leonardo is distinguished by a floor-to-ceiling height curved screen which is technologically sophisticated but has suffered ongoing operational problems and therefore not extensively used.

## *6. the social setting: occupation, use and interaction* (based on researcher's observations)

### 6.1 InQbate Creativity Zone, Sussex, 19.05.09

This was a morning session from 10am – 12 am on Advanced Colours and Textures with 2<sup>nd</sup> Year Product Design students. The exercise was to explore how to produce 'a clear and readable interface using visual techniques'. There should have been 26 students, but around 10 were missing which the tutor put down to the early start. It is also two weeks before start of exams, and at the end of the week of my visit students are to present their prototypes to a panel for formal assessment in the InQbate space.

On our arrival, one of the technical support team is helping the tutor to set up. The smaller space to the left is arranged with chairs in slightly curved rows and a projection is ready on the screen. The larger space to the right looks empty, the white beanbags piled up at the far end of the room. In the foyer area, there is a table with coffee jugs and cups on it. The space is artificially lit, and the reflective surfaces of the whiteboards, somewhat smeared with semi-erased pen, and the floor create a shadowy effect.

As the students arrive (12 males and four females) they make their way purposefully to the lecture space, dumping their bags and coats on the floor beside their chairs. As the chairs run out, some go and fetch beanbags, dragging them across from the adjacent space through a gap in the pivoting screen. But the tutor announces, '*I prefer people to sit on hard chairs in lectures, you can pay attention more.*' The rejected beanbags are kicked away and hauled back to where they came from. Some students pull out stools to sit on. Cold air can be felt percolating through the steel grids in the floor, and the room becomes progressively chilly.

The students sit still and quiet as the presentation begins. The tutor places herself between them and the screen, standing beside a round white table at the front. Everything is white, apart from the projection. The only sound apart from the tutor's voice is the whirring of the projector, and then a clattering from the rear as the coffee jugs and cups are cleared away, and the squeaky sound of shoes on the floor. There is no view out beyond the room, so the focus on the screen is total, introverted.

About half an hour into the tutor's presentation, there is some shifting, somebody coughs, another student clears his throat. There is a brief interaction between two students at the back, one turning to smile at the other, a slight murmur of laughter at a toilet roll advertisement displayed on the screen. The tutor announces they will break up into groups of three or four for the next part of the session, and use the whiteboards to work on. There is some stretching and, as the tutor distributes handouts, an outbreak of chatter, some beatboxing, tapping of feet.

The students quickly rearrange themselves into groups, squeezing past the screens into the adjacent space. There is a thump of beanbags being moved. *'Find yourselves a space, grab a bit of wall each'*, instructs the tutor. One student skids across the room on a beanbag, lying on his stomach.

The students congregate in the bottom left corner beside the table with pens on it. Five groups are formed. One student walks round with a coffee in his hand, disappearing through the door towards the exit. There is a hubbub of voices, and four of the groups quickly start writing in pen on the screens, while the fifth is seated in a cluster on beanbags, one of the number equipped with a large sketch pad on his lap, talking, fiddling with a mobile phone. Three of the groups consist of three or four male students, while the other two include one and two females respectively.

Group 1 designates a writer. Of group 2, two have disappeared, one reappearing with a can of drink. Of group 3, one is seated on the table, one standing at the wall, one lounging on a beanbag, and one sitting on the table looking at the computer screen on the wall. Of group 4, two are standing at the wall writing. The tutor is standing next to the seated students in group 5, while the female student writes on the wall.

From the foyer area, jokey loud conversation can be heard from one group, the sound of a female voice distinct above the others. Two of the members start skipping through the doors into the foyer space, one beats out a rhythm with the pens in his hands. *'Rubbish wall screen!'* exclaims one of them. *'Oh my god, write it up! Do it now!'* commands the female student.

The students work either on the walls, or on sketchbooks on their laps. One group has commandeered the fold-down table to work on. Shortly after 11am, the tutor tells them, *'Get your ideas together and put it on the board'*. One student takes picture of the board with his mobile phone. Nobody is using the computers, but the tutor says they usually use them more to reference information they need. She is making a website to put the students' work on, so that they can share their ideas with each other more easily.

Everyone is focussed on drawing, and discussing the ideas with each other within the groups, creating a low background hum of chat which

resonates around the space. Eco-cleaner is squirted at the screens to clean off mistakes. Activity is focussed around the perimeter of the room, leaving the majority of the space empty and very cold – as noted by the tutor. A few sketches are scattered on the floor. Group 2 closes the door in the partition to the foyer and start writing on the back of it. *'Are we going from left to right?'* one of them asks. He starts performing actions against the wall to demonstrate what he's drawing. But most of the other students sit in clusters, making close eye contact with each other while they discuss their projects. Most of the groups are using two panels each, but one is using three, and Group 2 has spread onto the back of the door.

More of the students start recording their work on their phones. All of a sudden the lighting changes from standard spots to blue/pink hues. *'Two minutes left to get your ideas on the board!'*, instructs the tutor: *'ready to tell us about it.'* There is a general increase in activity, interaction between groups and humour: two students start sparring with each other, another two hug each other. One challenges, *'go round that way! Start with the best, it just goes down from there!'* Gradually they all assemble around Group 5, watching as one of the male students starts presenting the project to everyone else. *'This is X's idea'* he says, indicating an adjacent diagram. Another student in the group takes over the presentation, indicating drawings in a sketch book propped against the panel on the floor.

The next group opts for each member to explain their own ideas. Groups 2 and 3 designate one of their number to present, but in group 2 the female student adds comments as he goes along. Group 1 presents in turn. Mostly the others listen and watch. The tutor rounds up with some concluding comments and announces that next week will be 'portfolio surgery'.

The beanbags are hurled to the far end of the room, papers gathered up, bags zipped up. The students move back into the smaller space to collect their things in a hubbub of chat, when the tutor summons them back to wipe off the screens. The lighting turns yellow. Some of the male students play on the beanbags, most vacate the room quickly.

Engineering 2 workshop: the afternoon session is spent working on prototypes in a workshop in the Engineering 2 building, a short walk across the campus through the carpark. The space is lined with work benches and high stools, with various items of heavy mechanical machinery installed in the end space, and a small room set aside for welding and paint spraying. The students all wear overalls, and work individually, mostly standing at worksurfaces around the perimeter of the space. The tutor visits each in turn to discuss the progress of the model. The floor is blue linoleum, with yellow-painted walls, strip lighting, power sockets suspended from the ceiling, and large windows along one side of the room. A window is open for air, and there is also an extract fan, and extraction funnels to keep the room free of dust. Furniture and fittings are heavy duty and serviceable.

Everybody walks around a lot, collecting tools and materials – paintbrushes, power drills, timber planks etc - and occasionally stopping to look at somebody else's project, but mainly focussed on their own work. A couple of technicians also circulate, providing assistance where necessary.

There is a considerable background noise of machinery which varies through the session, and smaller sounds of squeaking, bumping and brushing as the students manipulate their materials. There is a smell of sawdust, and the atmosphere is warm and busy. Everybody is closely engaged in some kind of physical activity, occasionally helping each other with lifting, placing, gripping, trying to understand how to use different tools and bits of machinery. Angle-poise lamps and the sun create pools of light amidst the mess, a broom is propped up against a pillar.

In the next door room on the other side of the corridor there is computer equipment, including rapid prototyping machines. The tutor comments that the facilities really need enlarging. Sometimes they try to accommodate 60 students at a time in this suite of spaces, and also there is scope for renting out laser-cutting machines and other bits of computerised equipment commercially.

## 6.2 Leonardo/ Galileo (IQCC)

On the occasion of my first visit (20.05.09, 12 noon), the room is not in use. However, a Canadian visiting lecturer arrives to teach a session on Online Communities to adults. He arrives in advance, and calls in at the office to check that there are pens available (for writing on the whiteboards), and if there are any 'odours' he can use. He suggests '*putting some peppermint through*'. Tutor T3 (Manager of the Creativity Centre) discloses that the '*commercial odours*' available are not very satisfactory. He also suggested that many tutors need a lot of technical support in setting up the space, and do not leave sufficient time for this. He maintains the technology is too complex and probably unnecessary in any case. The room is best used for '*playing games*', but the space itself is too low for yoga or dance, which limits its use for physical activities in the way he would welcome. The need to use the room in '*a meaningful way*' is emphasised, and it is suggested that tutors in product design are not very interested in exploring its possibilities.

On the occasion of my second visit (26.10.09, 9am on a Monday morning), the room has been booked for a final year product design teaching sets review by two tutors (T5 and a colleague) lasting from 8.30am to 1pm with a break at 11am. They have not used Leonardo for this purpose before, which does not specially require the facilities provided by the space. Indeed, it could be conducted in any available studio or classroom space. But they are lucky to have access to the space, because, according to the Centre Manager, it is booked out until Christmas for teaching, under pressure from the university, even though it is still meant to be in the 'dissemination' stage. According to T5, it has become slightly easier to book the space compared to last year, when his usage was down to about 5 sessions a term from nearer 10 at the beginning. Now it is closer to 15-20 sessions a term, ie once or twice a week.

On my arrival, work to fix the coloured lighting system '*to what it should have been* [at the beginning]' (T3) is taking place. T5 and a female student are seated in beanbags near the wall, discussing '*target markets*' and '*emotions you want to produce*'. Outside the door, a group of five male students is assembling; they enter with T3, cross the room to the opposite

side, and pull out white plastic chairs to sit on around a rectangular table in front of the main projection area. Track-mounted moveable whiteboards subdivide the space visually from T5 and his student, but they leave the room almost immediately.

T5 later returns with three more students, and his colleague with six students, who all grab beanbags and arrange them noisily in two groups against different walls, leaving a large central expanse of space in the room empty. One beanbag comes open and polystyrene balls spill out onto the carpet, where they remain. One student tries to pull a board across to extend the screen, but is unable to move it and abandons the attempt. The students, who are all male but one, throw themselves down on the beanbags with their tutors. They appear relaxed and animated. There is a general low hubbub of voices as the three sessions continue in parallel in different zones of the space. Objects are handed around, and notes are made; one group delegates a note-taker, observing that nobody took notes last time.

The tutors listen attentively but do not seem to be the focus of attention. There is a close involvement and interchange in the conversations on the part of all students, and little evident fidgeting, except for one seated at the table who clicks a pen incessantly. Students seated on beanbags sit relatively upright, apart from one who reclines and later reveals he was very sleepy after an early start. Those seated at the table sit up in their chairs with arms folded across chests, or lean forward across the table in focussed conversation. T3 sits at the head of the table but hardly intervenes in the students' discussion.

There is no food and drink in the room, except for a bottle of water placed on the floor beside one of the students sitting in a beanbag.

#### Reconfiguration 1

At 11am the students get up and leave for a short break while the room is rearranged by the tutors. Folding tables are brought out and set up in the centre of the space closest to the projection area. The whiteboards and pot plants are moved out of the way, with the exception of the screen of whiteboards behind the tables, behind which the beanbags are stowed. Chairs are arranged around the tables, the lights adjusted, and the projection switched on.

A larger group of students arrives, including those who attended the earlier session. There are now three women amongst them, but the rest are male. A woman exclaims at the sight of tables and chairs, *'Oh, are we sitting at chairs today? Oh! Sitting at tables?!'*, as if this is unusual. They arrange themselves at the tables, with some hesitation and uncertainty - *'I'm going to be sitting on my own'*. The three women sit in close proximity to each other. Altogether there are five groups, with books on the tables, and one table which remains empty.

T3's colleague pulls down the blinds, and the students turn their chairs to face the projection on the wall, and T3, who is seated just in front of it. He launches discussion of the last task - writing a project brief. The students are upset because they feel they weren't properly taught how to do it, and some of them have got low marks. They are worried this will affect their final grade: *'if it's contributing to our final mark it's a mistake you don't want*

*to make.*' The students are quite vociferous, and one in particular is argumentative. They seem confident of their position. *'Could you use simpler language?'* one demands. The teacher accepts their feedback: *'point taken'*; but he justifies the 'harsh' approach, stating *'I do education'*. There is animated conversation among the students until one female student speaks up, *'Come on guys, let's just listen'*. The group quiets down.

Reconfiguration 2:

T3's colleague walks to the back of the room to take some coloured pens from the basket on the plinth by the door, and returns to place himself in front of the screen of whiteboards. The projection is switched off, and the students all turn to reorientate themselves in the other direction. The tutor launches a dialogue with the students, writing notes across the full length of the screen as they respond, walking energetically back and forth. A flow of suggestions comes from the students, while T3 adds his comments from behind them. Suddenly the other tutor disappears behind the screens to get something, reappearing at the other end. The students seem animated, even jokey, their heads swivelling from front to back to focus on the two tutors.

Reconfiguration 3:

T3's colleague relocates himself at the front and starts handing out books to each table. There is a general hubbub as the students rearrange themselves again, and get their heads down to study the books in groups around each table. The tutors meanwhile confer privately behind the whiteboard panels, then move back to the front.

T3 addresses a comment to me: *'there's this obsession with marks, we've got to persuade them that what we're doing is right.'*

There is a concluding question and answer session, then the students stand to gather up their things and slowly vacate the room for lunch.

Galileo: on my arrival the students are in their seats, roughly arranged in rows, in a darkened room. They have come here specifically to watch a 3D CAD demonstration on a large screen at one end, and they are wearing 3D glasses which prompt laughter and chatter among them. Their tutor is sitting with them, firing questions at the older man who is giving the presentation.

*'Have you all seen the haptic controller?'* (T)

*'I'd like to learn how to use that!'* (S, enthusiastically)

*'Anyone else got any CAD they want to give these guys to try out?'* (T)

*'I wouldn't have no social life if I had this!'* (S)

*'That's not true, I see you floating round Lewes Road!'* (T)

One or two students enter late and seat themselves in the dark. After about 20 minutes, the computer seizes up, and they all head off to the computer lab to work on their CAD portfolios on their own.

Computer Lab (Room 319): this is located on the floor above, off a long corridor. It is a long rectangular space with 7 pairs of long worktables set at right-angles to the windows. There are 11 big windows ranged along one side, all screened with black-out blinds. On the desks are 48 fixed flatscreen computers. In between the worktables and the wall is an elevated

desk for the teacher, and behind it, on the wall, is a whiteboard and two soft screens. Two projectors are fixed to the ceiling. The room is artificially-lit, cool and air-conditioned.

Each student grabs a computer, dumping bags and coats on the floor or table beside them. The tutor puts on music from the computer on the front desk, then leaves it to sit with each student individually and talk them through their project: *'the skills that I'm after, the content's almost irrelevant'* (T). The atmosphere is quiet and concentrated, with a discreet muttering of comments between students.

The tutor reminds them that there are tutorials up online to refresh themselves.

One student stands up to look at a neighbour's screen; he is wearing earphones and singing to himself. There is a bit of fidgeting and hand-slapping in rows 4 and 5. One female student stands up and walks round to talk to another student in a different row, but there is no space to work in groups or form clusters round individual computers comfortably.

*'I watched Solidworks on YouTube for hours trying to learn how to do it'*, comments one student, indicating the role of the internet as a resource in students' acquisition of skills and knowledge.

### 6.3 CETL-D room and café

I start both my visits on 20.10.09 and 3.11.09 with a coffee in the café at around 11am. Several groups of students and/ or staff are seated round tables in conversation with notes or laptops in front of them. The servery becomes increasingly busy until 11.20 when I leave, with a queue of people waiting to be served. There is a quiet murmur of voices around the space, and outside in the quad a number of aluminium tables and chairs are occupied by smokers. People greet each other, and tutors and students seem at ease sharing the space together.

I walk back to the CETLD room round the corner, and enter to find, on the first visit, the students (Second Year, mix of History of Art, graphics and photography, doing the Breaking into the Museum extension studies module) all grouped around two tables pulled together in the middle of the room, with a couple seated on the window-seat. A male visiting lecturer is standing in front of them with his back to the door, showing objects to the group and describing them. The tutor, T2, holding a mug, is sitting at the head of the table, also with her back to the door. The group is all female, except for one male student, and everyone seems quiet and focussed.

The table contains a collection of objects, which are passed round one after the other. Two students take notes on their knees, one has a laptop on her lap. There is a constant background banging of the fire doors at each end of the corridor, and the sound of voices as people pass by both on that side and in the quad. Few of the passers-by seem to look in or to display curiosity about the activities inside the room.

The tutor invites two of the students to show their own collections and talk about them, which they do from a seated position. The tutor invites questions from the others. She walks away to the table under the screen to collect handouts and some chat among the students starts up. The tutor



returns and hands out the sheet and quickly takes the lead again, keeping the conversation structured. Conversation and laughter sparks up around the postcards which one of the students is passing round. The tutor draws attention back to the sheet and asks someone to read out one section. One of the students immediately responds. A mobile phone goes off in the room, and a man with a trolley passes by noisily through the corridor. There is some hesitation as to who will read the third section, and embarrassed agreement.

The tutor asks the students to return to their original tables nearer to the screen. There is some shuffling and re-arranging, as five students sit down around each of two groups of two tables each. The tutor writes on the flip chart and sets the reading task for the next session at CETLD, which will be in two weeks time, as next week's session will be at the Victoria and Albert Museum in London. The students diligently take notes on what to do and receive their reading hand-outs. The tutor divides the group into two to undertake the readings, so that they can present to each other next time.

The class is winding up, at the end of a 3 hr session with break, and the students start discussing among themselves. There is nothing on the screen, but two of the students earlier presented on their own laptops. The tutor flips back through the chart to remind them of something else they've done today and writes up instructions for the meeting at the V&A. There are five minutes left, and she suddenly draws the students to attention again, asking them to jot down the things they found most useful about the lesson today. Once again they are quiet with their heads down, concentrating on writing.

A female student stops in the corridor outside, peering in and gesturing, smiling, to someone in the room. The visiting lecturer has returned to the room, to collect up his things, and goes out again. The tutor squats down on the floor beside the male student's chair and speaks to him about what he found useful. Then she moves to speak to another student on the other table, sitting down next to her on a vacant chair. Other people pass by outside talking, making no attempt to tone down their voices.

'OK, great', announces the tutor, and leaves the room. The students slowly gather their things, conversing among themselves and start to leave.

Session 2: on this occasion, students are seated in fours around three tables nearest to the screen. The tutor occupies another with her papers, but sits down at each table in turn to talk to the students more intimately. One student gets up and leaves the room, with the door wide open. Another walks back in, returning from the café. A woman passing by pauses and looks in, twisting her head to see into the more concealed part of the space where the students are sitting. The tutor closes the door.

Bottles of water and soft drinks and orange paper cups from the café are on the tables. The Venetian blinds nearest to the screen are closed, even though no projection is in use, unlike the flip chart, which is open on a new blank page. The tutor writes on it, while the students copy down her notes, one using a laptop.

The tutor announces a break, and a student gets out a chocolate cake, places it on the table and cuts it, while the others sing happy birthday. The

pungent aroma fills the space. The cake is handed around, and the tutor walks down the room and through the door to the office to see if she can get any plates or napkins from the office staff, who are visible through the window. A teapot and plates are visible in the office cupboard.

After the break, the students transfer to an upstairs seminar room where they will participate in a video conference. It is a smallish room located next to a board room, which seems private and secluded compared to CETL-D. It is painted white, with a grey floor, black chairs, a blackout blind, and a big pine table taking up most of the space, and the students range themselves around it and focus on the screen in the corner. The speaker gives a presentation about the V&A via video. At the end, one student asks permission to ask a question, twisting her head to address the tutor who is sitting at the back of the room on the windowsill. 'Yes!' she responds, looking slightly surprised. Other students follow on with more questions, all taking notes continuously on the table-top, except for the one with a laptop.

On returning to the CETL-D room, which now feels slightly cold and dark, though the ceiling lights have come on very low, everyone settles back into their original places. *'It's great that everyone is busy writing'*, comments the tutor, suggesting they take away their notes and read them over. Outside, a woman is walking back and forth in front of the windows, talking, inaudibly, on her phone. The tutor sets the next task: *'this is an individual project but there'll be lots of feedback from each other in the class.'*

#### 6.4 summary comparison

All three spaces are multi-focal and promote group work, interaction and mobility around the space, and subdivision of teaching sessions into different parts directed by spatial reconfiguration, use of different kinds of seating, and variation of tasks. However IQCZ and Leonardo promote this type of use more obviously than CETLD, where the sessions observed were more static and less animated, but the group in question was also smaller.

At Leonardo and IQCZ, projections were used for presentational delivery to the whole group, seated on chairs, followed by fragmentation into smaller groups to engage with specific tasks (drawing on whiteboards at IQCZ, working with books at tables in Leonardo), and finally reconfiguration as a whole towards the conclusion for group presentations and questions by the students. Galileo was used specifically for a focussed, computer-generated presentation (in 3D) to a single group, and then the room was abandoned so that students could work on their own on their portfolios in a conventional teaching space equipped with individual desk-top computers. At Leonardo, the teaching session was preceded by group discussion work, on beanbags, shared by three tutors using the whole space, before the whole group gathered together around the projection screen for the presentational session with two tutors who shared the role, creating a dynamic interaction between front and back which compelled students to engage physically with the teaching process even while remaining seated at tables. At IQCZ, by contrast, there was more dispersal among students, to the perimeter of the

space, while the sole tutor was freed from the spotlight of presentational delivery in front of the group to take a 'back seat' and circulate among them discreetly before reassembling the group for discussion: this session was less performative in quality. The sessions observed at CETLD were taken by a single tutor, but on the first visit an external lecturer had been invited in to present to the students, using physical objects as the focus of discussion, which were handled directly by the group before returning to smaller group clusters for the next part of the session. No projection was in use, the tutor relying rather on a flipchart and handouts to structure the delivery of material.

The CETL-D sessions were more intimate in character, the smaller group clustered in a focussed area of the room rather than spreading out across it widely. Interactions between the students were carefully managed by the tutor, and the students were careful not to interrupt each other. The session conducted in the conventional seminar room was not that dissimilar, but when the students were gathered around a single large table, focussed on the video conference screen, the interactions among them seemed more constrained. At both Leonardo and IQCZ the sessions were more vocal, spontaneous, noisy, and physical, and the use of beanbags generally generated more relaxed, informal physical behaviour in the space.

In all three cases, but particularly at Leonardo (where the students were mostly male, and the tutors all male), students manifested an easy, discursive engagement with their tutors. The gender balances differed quite significantly in each case, and this may also affect the character of the social interaction, dynamics and level of distance between students and staff. At IQCZ a mainly male student group was taught by a female tutor, while at CETL-D the all-female student group, plus a 'token male', was taken by a female tutor, with input from a male visiting lecturer. Age range also varied, the IQCZ group containing a majority of younger students (Yr 2), while the IQCC were final year students who had also had done a year out on professional placements, and the CETL-D group were Yr 2, but contained a number of mature students. Finally, the interactions will also reflect differences in teaching style, background and preferred methods of staff members, and should not be understood and so cannot be interpreted as the result of pure spatial determination.

## *7. staff and student perceptions of the spaces and their impact on teaching and learning*

(based on interviews and focus groups; NB quotations included from focus group sessions should all be understood as individual voices, but are not attributed to individual speakers as such, only differentiated between male/female participants)

### 7.1 InQbate Creativity Zone

#### *a. spatial, material and sensory qualities*

##### *i. furniture and spatial layout*

Although beanbags are a feature of the IQCZ space, as in Leonardo, and although they seem to prompt more spontaneous and playful behaviour during teaching sessions, perhaps because of the smooth floor surface, perhaps because of the makeup of the student group in question – *'almost not grown-up enough to use the beanbags'*, with a *'macho dynamic'* (T4) - they do not attract the same level of comment or evaluation from students or staff as at Leonardo. They clearly facilitate group working at the whiteboards around the perimeter of the space, and there is comment on the comfort which they offer, although it is somewhat qualified: *'it's nice to sit in beanbags, but.. that just induces sleep if it's not interesting... if you're sat on a chair, you're forced to sit up,'* says one (SFG1, with reference to presentations). While another suggests that it's better to be bored and asleep rather than uncomfortable: *'much better being relaxed than in a lecture hall where you're also not listening, but you sit there really uncomfortably'*. In the session observed, however, students are asked by the tutor not to bring beanbags into the presentation space, because she prefers them to sit up straight in chairs for lectures.

On the whole there is greater feedback regarding the spatial organisation of the room generally, and the flexibility which it offers for accommodating multiple activities at the same time, to the extent that the space is perceived more as a group of rooms rather than a unified area: *'There's lots of moving around between rooms'* (SFG1); *'Seminars are split up more, compartmentalised'* (SFG1). In Leonardo, the track system for manoeuvring the whiteboards allows more extensive, but less compartmentalised subdivision of the room throughout the space, generating a sense of free-flowing movement among them. At IQCZ, the whiteboards are mainly located around the perimeter of the room, and the T-shaped partitioning system is more solid and less flexible, providing a clear template for subdivision of the space into three sections, with doors or gaps in the partitions for circulation between them. In addition, there are curtains *'that can break up the area'* on a smaller scale (SFG1), and once *'they had curtains and plinths so you had to walk [through the space] like a snake'* (SFG1/F). There is a clear sense of sequence and order in terms of the relationship between the spaces: mingling, preparation or break-out in the 'foyer' area, arrival and settling-down, including deposit of bags and coats, in the smaller presentation space, and dispersal into the larger space for group working in clusters around the edge.

The large preliminary area is almost perceived as redundant: *'When you first walk in, there's... all the junk, the chair thing and the two plasma screens, nothing... you just use the other two rooms'*, comments one student. Maybe this is partly because, although it is used as an area for serving refreshments, students are not usually included in this hospitality – *'tea is not for students'* (SFG1) – and need to leave the room to purchase their own drinks and snacks somewhere nearby, such as the Bridge café on the other side of the building. Hence there is no reason to hang around here, despite the availability of computers on which to look up information. In fact, one advantage of the space is that *'everything is within walking distance of 10 minutes'* (SFG1): in other words, it is perceived as well-connected and accessible in terms of day-to-day useability, although for exhibitions and presentations it is regarded as being too far off the beaten track in relation to the rest of the campus, and lacking a public frontage appropriate to its function as a destination for outside visitors (although it is signed from the carpark). Once inside, it is completely introverted and can feel cut off.

Built-in spatial flexibility allows the students to work in groups easily, and this is perceived as being *'a lot more intimate... easier'* (SFG1/ F). One tutor's ability to harness this potential is commented on in particular: *'[he] knew how to utilise the space and he always got everyone interacting'* (SFG1) – for instance, he *'would use different chairs in different ways'* – but it is suggested that not all the tutors have the same flair for doing this. Tutor 4 states that, although she was thrilled at the prospect of using IQCZ, and the possibilities it offered for thinking more creatively about her teaching practice, especially the scope for laying out teaching materials in different 'zones', it can be *'quite intimidating for tutors to use'*, partly because *'keeping the momentum going is more difficult'*. She points out that the space is large, and, although it is impressive and capable of accommodating large audiences for presentations or exhibitions, it can seem empty if there are not enough people in it: *'it needs a certain number of people, at least 20'*. In addition, depending on the maturity of the group, there can be a problem with students *'enjoying it too much'* (T4), and becoming distracted.

On the other hand, she affirms that IQCZ *'has been great'* for her in terms of developing brainstorming and creativity-stimulating techniques, such as the immersive Emergency Project which involved simulation of a fire, using projections across the walls, and emergency procedures. And both Tutor 4 and the student group spoke positively about the disinhibiting effects of drawing together and presenting to each other on the whiteboards – even though there can be *'competition for a bit of flat wall'*. *'We're all drawing at the same time, so no-one is actually watching you'* (SFG1/ F), and, *'people are standing up and more relaxed and paying attention... it's easier to present.'* Tutor 4 notes that there is always a stigma about drawing in front of others on design courses, and the use of the whiteboards and felt markers helps to overcome that, since nobody can draw perfectly on a whiteboard anyway. The process of drawing becomes a public, rather than a private activity: *'we don't have to write notes on papers. You can just draw on the walls and everyone can see it'* (SFG/ F), and then *'obviously, at the end you can just photograph it'*: the work becomes collective property.

The potential for physical mobility in the space is also evaluated positively: *'because you're moving around more it tends to keep you a bit more engaged'*; *'suddenly everyone gets up... and you're engaged'* (SFG1). The students recall that their User-centered Design course *'would have been good in InQbate... we were stuck in a classroom which meant we had to shuffle tables around because he wanted to get us moving... and doing... that would have been an ideal course to put in here'* (SFG1).

ii. lighting, smells, colour and sound

One of the key qualities of IQCZ is its spaciousness, and this seems to be heightened in users' awareness by the uniform whiteness of the room, and the hard reflective surfaces which can make it seem cold – both literally and metaphorically. It is identified as *'the really white, white room'* by one student (SFG1/ F) and, again, *'it's quite a cold room. It's all white'* (SFG1) – although, *'just opening the curtains [in front of the windows] does put a bit of atmosphere in there'* (SFG1): *'If you've just got the white walls and the white lights, it's a bit too sterile'*. On the one hand this spaciousness and emptiness, or lack of clutter, is perceived as *'a nice relaxing space'* (SFG1), but on the other, it is perceived as being rather high maintenance, demanding a standard of impeccable order and cleanliness that is not particularly comfortable and can be constraining. *'You have to have the lighting in the right way'*, says one student, and, *'if anything is out of place, you'll be shot on sight'*. That one of the group *'stained the floor with wine'*, and *'people have started doodling on the beanbags'* are recalled as transgressive acts, and it is noted that *'the space becomes really grubby... if it's not being cleaned properly'*; *'after every use it has to be wiped up'*. One student comments, *'it reminds me of my sister's house... really nice. But if I go to other people's houses, I feel much more comfortable because it's not nice.'*

The students' observations suggest that they do not feel completely at ease in the space at a sensory level, even though the flexibility it offers help to make them feel less inhibited in their group working practices, and it is also more comfortable physically in some ways: *'As much as they try to make it a relaxing environment, I always find it not relaxing. I don't know why'* (SFG/M). This may partly be because, due to the experimental agenda for the space, *'you are going to be photographed constantly'* (SFG1/F) when in there, and so there is always a sense of being watched and monitored, and of the need to be careful about making a mess or causing accidental damage which is very different from the normal studio or workshop space. *'If you're trying to work, then you need things around you, you need drinks, food or whatever, just trying to concentrate, and taking that away from you isn't very helpful'*, comments the female in the group. Their comments suggest that the scope for students to take possession of the space, or make themselves 'at home' in it is fairly restricted, and that its use is perceived as being more formal and presentational in character.

b. technological infrastructure

InQbate is supported by technical staff, whose role is to facilitate tutors' use of the space. Tutor 4 suggests that neither staff nor students are really allowed to interact with the technology themselves, and that this can make using InQbate *'extra stressful'*. The interface with the technology *'could be vastly improved'*. She suggests that for a morning session, starting at 10, the half hour allocated for set-up is not enough, and that this also makes timetabling an issue. Her own teaching sessions always follow the same format, starting with a Powerpoint presentation in the smaller space, because *'students feel shortchanged without that'* – the concrete information provided is *'part of what they're paying for.'* This is followed with interactive movies, and then group-working in the larger space and presentations to each other. But she says it is very difficult even to use a USB stick or CD because they have to be inserted at high level using a ladder, and health and safety regulations mean that this operation must be undertaken by an InQbate staff member.

There is a sense on the part of students that the technology is not really available or used to its full potential. Sessions in InQbate are summed up by one as *'just watching a Powerpoint, sitting in a beanbag'* (SFG/ F) – a passive interaction with the technological component. Students report that fully immersive sessions, using all the walls for large-scale projections as originally intended, are rare, and the one they have experienced fell somewhat flat – *'a bit of a waste of time'; 'a lot of the stuff they've done with lighting in the past and light projections and stuff was ... questionable'*. Although *'it wasn't dramatic'*, it was, however, *'potentially the best use of the area'*. Students are aware that *'it's a lot more effort for [staff] to go into InQbate and set it up than it is for them to walk into a room with desks and just plug in their PowerPoint and flip that through'* (SFG/F), and suggest *'they don't want to run around in InQbate'*. As a result, the technology is never really exploited as it could be, and certainly not by the students themselves: *'we don't really use any of the technology'* (SFG1/F); *'we're not encourage or it hasn't been suggested'* (SFG1/M).

The students say they will take a camera with them if they know they are going to use InQbate, but never a USB and rarely a laptop – because *'not everyone has that option.'* They suggest that *'it would be a lot nicer if they had more widescreens in there... when you're doing a presentation it would have been useful if we could have had a little Powerpoint show available to each of us.'* But they know *'the widescreens are... horrifically expensive'* (SFG1). In addition, there is a sense that they are not trusted enough, and therefore not given sufficient responsibility, to be allowed to interact with the resources in the way they would like: *'the lecturer decides if they want to do something. That takes away the fun and greatness of it... it's really controlled in there. We're not allowed to use the light patch... to move the walls.. so it makes it not flexible at all. We are adults... I'm sure we can manage that'* (SFG1/F). On the other hand, the sense of frustration seems more acute on the part of female respondent, while, amongst the males, there is a fear that they may, indeed, be lacking in maturity to engage with the space in a more

responsible way: *'I don't know, always people mess around in that kind of space...'*

There seems, then, to be a level of uncertainty within the group about how much responsibility they feel able to assume, and, further, an acute awareness of the cost of equipment and the potential risk of causing accidental damage to it which is inhibiting in their overall engagement with the space.

### c. status and image

The students reveal that InQbate was used as a key selling point when they came to look around the university: *'they said, oh there's this amazing room... you know, the really white, white room'*. They believe, *'that's the main sort of draw to the university now'*. The sheer whiteness of the room sets it apart, and makes it stand out from its surroundings, both physically and institutionally. But, on open day, *'it was locked and so no-one got to see it. A lot of people were like, oh, we heard about this amazing space that you spent loads of money on and we can't see it'* (SFG1). InQbate is thus identified as a high-value, even precious space, which must be protected at all costs – to the point of excluding the very students it is intended to attract. At the same time, this sense of its exclusivity helps to perpetuate its image as something special and out of the ordinary which gives the university a special advantage over the others.

One of the implications of this is, as at the Creativity Centre, that it is being increasingly hired out to outside companies – *'because they [the university] can't afford to have it apparently'* (SFG1). There is a general perception that the expense of running the place may jeopardise students' and staff access to it, which is regarded as a serious drawback. Tutor 4 says *'it would be tragic'* if she couldn't use it next year, because it is *'an excellent resource'*. She says that use of the space has not been guaranteed for next year, and this would make it very difficult for her to teach her course in its present form. This sense of uncertainty and mild resentment seems quite pervasive. *'We're not timetabled in there'*, comments one student: *'it's a booking thing. Because when we go in there, they don't get any money'* (SFG1). The students seem to believe that their access to InQbate has decreased since Peter Childs, its initiator (and champion) left, and so has that of staff: *'what I would really like is more lecturers to be able to use it'* (SFG1).

At the same time, one of the key virtues of the space is its attractiveness to outside users. It acts as a magnet and a destination for industry representatives from the outside world, as at Leonardo, and the students greatly enjoy this interaction and opportunity to engage with professionals within the university context and that of their course. As Tutor 4 comments, it is *'a great interface with the outside world'*, which facilitates the engagement of academia and the design profession. As a physical space, it can be reconfigured in various ways to accommodate different kinds of events, and has a professional, ordered ambience. The main problem is that it does not have a strong external profile, and physical access to it is via an undistinguished sequence of institutional spaces from the entrance hall of



Pevensey. Although it is used for exhibitions and drinks receptions, this summer the product degree show was held in a venue in the centre of Brighton – ostensibly for health and safety reasons related to the number of people expected, but also with an eye to raising exposure for the work in a more public location.

Health and safety is one of the issues which frames perceptions of the InQbate space in a more negative way, and enhances aspects of its image which relate to being inaccessible and constraining in some ways, due to the number of regulations which control its use. *'There's a lot of ridiculous health and safety in there'*, says one student (SFG1). Tutor 4 notes that, in planning her fire immersion teaching session for example, she had to be careful to strike a balance between achieving a powerful effect, and meeting Health and Safety regulations (ie to avoid any possibility of students having panic attacks), which perhaps compromised the overall impact (described as 'not dramatic' by the student focus group). It also increases dependence on technical staff to help out with relatively minor operations such as inserting a CD or USB into the computer system, which requires the use of a ladder. This limits staff and students' capacity to take possession of the space in ways which they might aspire to, and reinforces the sense of InQbate's ownership lying in the hands of an institutional and administrative hierarchy perhaps rather more than with its users among staff and student cohorts.

## 7.2 InQbate Creativity Centre (Leonardo)

### *a. spatial, material and sensory qualities*

#### *i. furniture and spatial layout*

The key feature of the Leonardo space which respondents (both staff and students) mentioned was the beanbags, as a comfortable, moveable, mode of seating that:

- helped to promote informal discussions through physical interactivity, movement and informality – *'rolling around on beanbags'* (T1)
- enhance students' attention – *'you don't get distracted about being uncomfortable, which is a benefit'* (SFG) –
- prompt reflectivity and new ideas: *'they sit in the beanbags and they reflect or come up with new ideas'* (FS2)
- create the *'possibility of play'* (T2) – they operate on spatial perception and behaviour in a particular way, loosen people up (T2).

Students spoke of sitting *in* the beanbags, as well as *on* them: *'You sit down and make a place and you're done'* (SFG). The fact that the beanbags can be moulded into a distinct shape to suit the individual constitutes a level of physical and spatial interactivity and of 'place-making', or taking possession, at a personal level within the space provided by the institution. This experience might be contrasted with the virtual nature of much of the visual culture, represented through projections, of these spaces.

Physical comfort was highly valued as a condition for allowing greater concentration, even if sometimes there might be a risk of becoming too comfortable and even falling asleep: *'the only possible downfall of that room is that sometimes it becomes too relaxing... they're so comfortable that you don't want to get up again'* (SFG2). On the other hand, the act of lifting and

moving the beanbags around in the space, along with manipulation of the moveable whiteboards, is key to generating physical mobility and interaction during teaching sessions: *'beanbags are good, walls that move around, they're good...That's the sort of interaction that works for us... lessons in there are far more mobile ... let's move the tables out, and everyone's sitting on beanbags and stuff, let's go up and write on the whiteboards'* (SFG2).

Students also indicated that the beanbags suited their style of working and self-image as design students: *'the beanbags are a definite plus... because of the nature of design, we're a bit more relaxed, and we like to be able to feel relaxed while we're doing our designs'* (SFG2). The beanbags not only fit with their image of what a designer should be and the way a designer should work, but, perhaps, helps them to differentiate themselves from their peer groups in the engineering courses within the same block – students who, according to T5, are more accustomed to traditional transmission-based teaching methods: they are *'used to being lectured at'* (T5).

One member of staff said he had concerns that *'beanbags quite often do set up a contextually wrong idea, expectation, which is not what I personally would like... it means it's very informal...not rigorous in any way'* (T5). His worst experience of using the space, however, was with children, not students – *'they thought it was hilarious'*. Although he would prefer to have *'more comfy chairs'*, the beanbags do not make a significant difference to students' behaviour in normal teaching circumstances, especially in a *'very directed'* final year group such as the one under observation: *'you sit round a table, you sit round a beanbag, it doesn't really matter. Sitting round a table somebody takes notes. If you don't sit round a table quite often they don't take notes'* (T5). In fact, as I observed, students did organise themselves to take notes during the teaching session conducted on, or in, beanbags. One group designated one of their number to undertake that task, recognising that it had not been done on a previous occasion.

In conjunction with the beanbags, the lightweight moveable furniture and moveable whiteboards on tracks provide the possibility of flexibility and interaction in terms of the spatial layout and qualities of the room, which may in turn influence the style of teaching – even though the room, in terms of its basic spatial co-ordinates, is described by one student as *'quite confined'* (FS2). This could be attributed to the location of a single, restricted, entrance/ exit, and view into the room, at the farthest distance from its main focal point – the curved screen – along with the use of sliding panels to close off the views and light from the windows. Nevertheless, and in the words of the same student, the flexible aspects of the design create an *'open-minded environment'* (FS2). Although she, as an engineering student, has not personally been taught in that room, she has experience of organising an exhibition in it, of photographs taken by the Engineers Without Frontiers group which she co-ordinates. For this event, she found that the boards could be positioned to create a sense of free flow through the space, almost *'dragging [people] in'*.

Tutor T5 further describes the positive way in which the boards and tables can be used to subdivide and alter the space around smaller and larger groups of students: *'You'll have a pair of boards next door to each*

*table. And then you'll have eight different tables in here, and everybody is part of it, they can still see everyone, but they've got their own boards and their own privacy and they can work on things which are creative and slightly confidential.'* Eye contact and line of vision can be maintained throughout the space, while at the same time contrasting areas of more private and more public activity can be created within it. There is a level at which the space can be personalised and experienced in a more intimate, small-scale dimension, and still opened-up for large-scale, large group activities. As the student focus group notes, *'that's the sort of interaction that works for us, that you can create different areas'* (SFG2).

The potential for reconfiguration also embraces the idea of simple reorientations of the space, as witnessed during the observation session: *'where the theatre bit comes in was the modification and change of scene. You face one way and face the other'* (T5). There is an awareness of the room's performative dimension. The teaching process becomes a dynamic performance, actively engaging the students' attention, forcing them to shift and re-focus their attention through physical adjustments to their position. Although the fixed focus of the room is the curved screen in the corner, it is also possible to create a multi-focal environment by manoeuvring the furniture and fittings (including the pot-plants on wheels) into different positions. The students draw a clear contrast between this experience and that of conventional teaching spaces: *'in our first year there were a lot of boring lectures and that space would have made it a lot better... a lot of us sitting in rows like in a classroom...'* (SFG2). *'We do a lot of that.. now get into groups and do this, then come back, all join together, so that room's good in that sense, it can cater to that sort of set-up'* (SFG2/ F). There is a clear sense that the free space offered by the room, in conjunction with its mobile furniture, enhances the process of circulation and group interaction, collaboration and sharing, and, by extension, the process of engaging with and absorbing the content of teaching sessions offered there by comparison with others. As tutor T5 suggests, it's *'a model which says you're working in groups'*. But, for tutor T3, that is precisely why it has not been as well-used by design tutors and students as had been hoped, since this model does not fit with traditional coursework and working methods based on individual project development.

Not only is the experience dynamic, in contrast to the static scenario of conventional teaching, but it is also perceived as being fun. *'Humorous... loads of laughs'*, is how FS2 describes her experience. Gales of laughter, jokey interchanges and noisy banter between students and staff punctuate the teaching session observed and seem to endorse the idea that learning in Leonardo really is fun, not just part of an institutional agenda for the *'possibility of play'* (T3) embodied by the beanbags as symbolic and material objects.

All of this appears to stem from the way in which the room positively promotes physical movement and interaction among its users, which effectively loosens up the sessions and enhances participation. On the other hand, there is a suggestion that a pre-condition for the room's success in these terms may be an existing level of cohesion within the student group

and sub-groups using the space. T5 notes that *'if they're in groups then you've always got that support from the others'* (T5), and this in turn can be understood as enhancing team-working. But according to student FS2, who attended a special event in the room which required participants to dress up in green and eat green cupcakes, *'it only worked because it was a small group of people, we already were involved... almost friends and knew each other'* (FS2). She maintains that, when people don't know each other well (and therefore the group dynamic is weak or non-existent) the experience can be *'really stiff'*, and not successful.

A further point raised by the students is that, although the space might be seen as liberating in some ways, it is not necessarily perceived as empowering. They say, and tutor T5 concurs with this, that they rarely have the opportunity to engage with the organisation and set-up of the room themselves, which is effectively controlled by teaching staff: *'You don't get to decide how this space is going to be set up'* (SFG2). They complain that they have *'never really been shown the whole thing working'*, and don't fully understand or know how to use its capabilities: *'It's, just figure it out for yourself'*. In addition, they are usually given such short notice of the room's availability for their presentations that there is no time to plan or set things up, whereas *'I think if they said to us, right, we want you to in there and use it, go and talk to the technician... we'd all use it a lot more'* (SFG2/ F). There seems to be little sense of ownership of the space, or even of the possibility of taking possession of it, although one student suggests *'maybe you need to be bold, just go here I'm going to go in and have a go at this today, use this.'* In parallel, T5 maintains that he has *'always empowered students'* through his pedagogy, and emphasises his reactive approach to teaching, but agrees that there is minimal scope for students to enter the space and seize control of its spatial and physical properties – because *'it's not open enough and free enough for people just to wander in and do something.'* In this respect it stands very much apart, and differentiated from, the studio space across the landing, which is clearly designated as student, as opposed to staff, territory, and in which *'I'd expect them to do much more of that sort of stuff'* (T5).

## ii. lighting, smells, colour and sound

The facilities provided for altering the lighting and olfactory qualities of the space prompt less comment in general, and more explicit negative comment. Although tutor T5 finds the *'change in the coloured lighting... extremely good'*, most respondents seem agreed that the olfactory dimension is mainly hypothetical. *'They told us about the smell thing... we talk about what smells could be pumped into the room...they never, never do it'* (SFG2). Tutor T3 confirms that the commercial smells available are *'not very satisfactory'*. Moreover, there is a certain level of suspicion expressed, both towards the lighting and towards the odour facilities, as representing an experimental venture, in which students are framed as guinea pigs – and, interestingly, the student focus group at Sussex immediately identified the potential of allergic reaction as an issue during a discussion of Leonardo's olfactory system.

For T5, the potential to alter the colour of the lighting is clearly linked to the idea of setting a 'mood' for teaching which can be powerful: *'Being able to set that mood gets people really involved'* (T5). He also speaks of the research agenda for the room, which is about *'investigating what makes creativity, what affects people.'* And while the students agree, on the one hand, that *'a nicer light rather than a harsh light'* (SFG2) may be a positive benefit, in terms of pure physical comfort, they also sense that *'quite often the lighting's just a bit self-conscious, how you to react to it... a subversive sort of control!'* (SFG2/F). Perhaps it is the sense of the invisible hand behind the lighting changes which prompts this reaction. *'You can play with the lighting'*, says one student in the focus group, but it is not clear who the agent is, and what the agenda behind the lighting changes really is.

While one student maintains, *'The option of smell and lighting is brilliant'* (SFG2), the general opinion appears to be both that neither are really necessary, and, also, that to use them properly requires a lot of pre-planning, for which there is never enough time: *'changing the lighting and stuff, it takes a lot of forethought to do it well'* (SFG2). One student describes the use of a 'strange' smell for the event she attended in Leonardo: *'there was this smell of... I can't remember.. it wasn't unpleasant. It was just strange.. it was nothing that you would consider to be normal when you walk into the room'* (FS2). Although the smell had an impact, and possibly generated a degree of unfamiliarity which may have enhanced the overall impact of the session, she couldn't precisely identify how or whether it was effective. For another student, *'it's a nice gimmick.. but we wouldn't ever use it'*; while another queries, *'when would you really need a smell?'* (SFG2). The doubts they express seem again to hint at a certain suspicion of invisible, 'mood-altering' tactics to which they could be subjected without their consent, and over which they have no control.

The other sensory element to be considered is that of sound, but this aspect does not seem to have been explicitly harnessed as a tool in the shaping of the spatial/ learning experience. Student FS2 describes how they used *'background music... soothing and relaxing'* for the exhibition, and music was played as a backdrop to the teaching session observed in the computer lab, when students were working on their individual projects. But teaching sessions in Leonardo generate their own noise – the sound of interaction and collaboration between users – and therefore obviate the need for additional sound. Indeed, the carpet on the floor is valued by T5, *'because it keeps it quieter'*. If anything, the priority seems to be to keep sound under control in a space which opens up the possibility of spontaneous noisiness through its emphasis on play and group work.

Finally, no comments are recorded in relation to the use or impact of colour, independently of the lighting system, in Leonardo. Although many architects and designers have explored the psychological impacts of colour in the built environment, and its effects on wellbeing, especially in educational environments, this does not seem to be high on the agenda in this case. The beanbags, pot-plants, and the Giant Connect 4 games stand constitute the only points of strong colour in the space, against a predominantly white background which allows for more nuanced variations of hue through

coloured lighting, the effects of which do not seem to have been precisely gauged.

b. technological infrastructure

The projection and lighting system in Leonardo is run off an AMX system, which is designed to be suitable for domestic application, and therefore relatively simple to use. Tutor T3 explains that a clear differentiation was established from the outset in the approach to the design of the technological infrastructure of the Creativity Centre and InQbate spaces: *'they've gone for experimental equipment... we've gone for established equipment in a new way.'* (T5) But there still appear to be questions over the efficiency and efficacy of the system that has been installed. Tutor T3, who stresses the importance of the spatial and material qualities of the room over and above the technological resources, complains that the technology is too complex and probably unnecessary. He says that the lighting and the curved projection screen have never worked as they were intended to (the lighting system is being fixed during my observation session), and this is borne out by the students: *'the technology's a wee bit iffy at the moment... the curved wall'; 'it's amazing, but it's not in use'; 'it's not brilliant'* (SFG2). Overall they express a sense of disappointment at the fact that the potential of the room, in technological terms, never seems to have been fulfilled – either because there isn't time to work it out, or because it simply doesn't work as it should. *'I've never seen them [the resources] used'*, comments one student; and, *'the technology is not good enough to service what we need'* (SFG2).

Tutor T5 is more positive about the technological potential of the room, and its user-friendliness, but does not seem to have fully engaged with it, even though there is a level at which the concept of substituting virtual for material resources seems to have been accepted as the norm – for instance, where he would have to stick up posters on windows in a traditional room, he can now just project images of them on the wall, a process which he finds a good deal more straightforward. *'The projectors work very well... the AMX... is really helpful. Almost anybody can do it'*, he says. Nevertheless, he still requires the human support provided by the technicians based in the Creativity Centre office: *'If I ask the technicians it's something particularly tricky, they'll have it done in 5 minutes, it's not something that takes them 3 days to programme or anything like that.'* The curved screen is more high-tech, but *'it's looked after by somebody, so it's easyish to use'*. T5 believes there will never be a day when teachers do not need the help of a dedicated technical team, and seems happy to leave that area of expertise to somebody else: *'we'll never be in the situation... where I could come here and use a technical facility in a non-routine way and be able to do that effectively.'* In other words, however good the technology is, the human backup will never be dispensable, partly because, the more complicated it becomes, the less its reliability can be guaranteed.

The students agree that the technology is not particularly complicated to use, but they would still need technical assistance – *'that's not really that difficult, you can figure it out from what do you call the guy, the technician'*.

The main issue appears to be that it is not that accessible, and that they have never really been encouraged or shown how to use it by staff: *'You still have to go and work it out... we don't just walk in and plug in and it pops up'; 'you can't just go in and watch YouTube videos or something. You have to know how to turn the projectors on'* (SFG2). The students seem interested in the potential of the technology, and particularly the possibilities of simulation which it offers: *'it's amazing to have lectures in there because there's tons of projectors everywhere, you can have three or four different project shows going on... that curved wall is beautiful, it doesn't quite work yet, but if it did it would be brilliant.'* And again, *'what it's really good for is multiple visual things'; 'if you're doing like a sports car, and you wanted to show flashing lights going past people's faces... you could actually create that'* (SFG2). But there is a sense of frustration, and also a certain passivity, regarding their own interaction with it: *'Maybe it's just we're lazy'*, one suggests. There is an acknowledgement that, in order to make these resources work for their own benefit, they need to be more proactive. To interface productively with the built-in technological infrastructure requires a level of commitment, motivation and input that they do not necessarily meet. And even though the room has been designed to invite the use of imported, small-scale, personal technology such as laptops and USBs - *'they [the students] can come in with their own computer and just plug it into the wall, one two three'* (T5) - this raises other questions about the universality or otherwise to such equipment which were not fully explored in this case.

### c. status and image

A key part of the problem around maximising the benefits that could be derived by students from Leonardo, as a technology-supported learning space that also provides a model for group-working and interaction, appears to be a perceived lack of access to the resources which it represents, on the part of the users whom it was originally designed to support. Indeed, my student respondents even suggested that they had been fundamentally misled as to the resources that would be available to them, and in fact are not. They describe the way that the space was used as a selling-point to attract them as prospective students, but had subsequently been withheld from them: *'We got shown all the plans when we came to look round, it was like this is it, it's going to be amazing, this is going to be here.'* (SFG2/ F). But, *'it's quite a different sort of story when you get there.'* There is a sense that it is *'people outside the uni, rather than us users'* who are privileged in terms of its use, and that, essentially, *'it's more for show'* than actual use. As one student says, *'Initially I was very impressed. I thought it was something new, I have never seen this before... but because you're not going to get to use it once in a while or twice in the whole of the year, it's kind of like, it defeats the purpose of all that money going into these fancy bits and bobs'* (SFG2).

The students' comments reflect a certain frustration regarding the availability of the space, but also seem to indicate a more general sense of mistrust on the part of students towards the institutional hierarchy and the way it is set up to promote itself within the free market of higher education,

where profile and image is all-important to attract applicants and income. These sentiments are also echoed by tutors, who acknowledge that 'prestige' is an important factor in the design and promotion of new teaching spaces: *'we get people trying to do prestigious meetings in here... something that's got external people in it and you go, oh, fair enough...'*; and, *'I can see that we need prestigious things as well'* (ie expensive technology). To an extent this is accepted while, at the same time, the fact that it reduces access to the resources for themselves as tutors is frustrating. Tutor T1 comments that he's *'not very conscious that it's available for us to use'*, even though there is a huge demand for *'useful teaching space'* (T5) which *'you can use when you need it'* (T1), due to the sheer lack of physical space across the university.

*'It does represent part of the university and the way it wants to project the image of itself'*, comments FS2 – even though, at the same time, its bad location (T3), 'embedded' within the engineering block, gives it a high degree of invisibility which ultimately limits the potential for commercial exploitation. Student FS2's comment reveals a level of awareness and acceptance among students of the conditions governing the delivery of higher education, and the all important cost-factor, even while they may resent the impact of those conditions on their own educational experience. At the same time, the perceived exclusivity of the space does also add to its perceived value, and so the very exclusivity which teachers may find frustrating is also carefully controlled and perpetuated by Creativity Centre staff through an elaborate and carefully vetted booking system, which not only requires a written justification for the proposed use of the space beforehand, but also submission of an evaluation of the experience afterwards. This process is supported by a Good Practice Guide which sets out conditions and expectations for use of the space.

This system effectively keeps casual users at bay, including students lacking the requisite commitment and motivation to engage with the resources properly, or 'meaningfully', as one of the staff member put it. Students perceive Leonardo as a closely-guarded space: *'all of the time it's locked so you can't get in there anyway'; you can only book it'; 'you have to pay to book it out'; 'or you've got other bookings in there, people'* (SFG2). However it is not impossible for students to take the initiative and book it for themselves, as one group did, holding a computer games event in the space to raise money and feed into their professional practice. In other words, it may be that it is not necessarily a question of closed access, but also one of motivation to engage with the institutional framework.

It may be that there is even a subconscious desire on the part of students to perpetuate a perception of the room as slightly set apart from everyday use and activity in order to sustain a sense of its elevated status, and as a bridge to the outside world of professional practice which students seem highly focussed on. While designed as an informal space, Leonardo is in fact heavily used for formal presentations and receptions as an interface between academia and the industry – the real world of applied knowledge. It seems clear that students place a high value on the connection of the university with professional life, and the educational process as a clear route to employment and success in the world of work. Hence, the fact that



Leonardo offers in many ways a forum for simulated experience of professional practice and presentational skills is a benefit. Even if the technology does not work properly, it provides an introduction to resources with which they will be expected to have some familiarity by the professionals: *'in future when I go to do a presentation in a big company, I can go up to the whiteboard and go, no problem. I know about scents, and I know about moods and lights'*. The space is thus perceived as being more professional than academic in ambience and functionality: *'you get to see what maybe you can use in the future... it'll benefit our future enormously, when it comes to design work.'* And again, *'it's trying to push you into the real world'* (SFG2).

It seems clear that Leonardo fulfils a function, in terms of its image and status within the institutional setting, not only as an advertisement for the university, and a rather costly one at that, which is not ideally situated for maximum impact, but also as a mixing-place which represents a potential for interactions and cross-fertilisation of a kind that would not necessarily be associated with a traditional teaching space. Student FS2 reveals that she had *'a very mixed audience'* for her exhibition, attracted both by invitation and by spontaneous response to the posters which drew them up to the venue. Although Leonardo may not exactly represent a showcase for the university's activities and engagement with the outside world, due to its lack of public frontage, it does bring people together within the heart of the institutional setting in potentially new configurations, and this is clearly highly appealing to students. The fact that they value the possibility of new interactions beyond their academic peer group is expressed not only in the context of the opportunities Leonardo provides for engaging with professionals and professional practice – *'they love it when people can come in from outside'*, comments tutor T5 -but also through the sentiments they voice regarding the possibility of increased interaction across year groups on their course. *'It would be quite useful actually for first years, second years, third years, all to be taught in this block, and all be here, because you only meet another year once'; 'the crossover would be a lot more'* (SFG2). Comments such as these emphasise the importance that spaces such as Leonardo play, both symbolically and functionally, as focal points for an emerging educational practice which is becoming increasingly fluid in terms of its internal and external disciplinary boundaries, and increasingly focussed on the necessity of teaching skills as much as imparting knowledge.

### 7.3 CETL-D Room and cafe, Brighton School of Arts and Architecture

#### *a. spatial, material and sensory qualities*

##### i. furniture and spatial layout & ii. lighting, sound and colour

The key qualities of these spaces noted by respondents were the natural light levels, permeability, and generally modern, high quality ambience. All of these were significant factors in their response to and experience of the spaces, and regarded as unique by comparison with other teaching spaces – even though they may not seem particularly 'innovative' per se.

Tutor 1 described the CETL-D room as *'a high quality space'*, which is *'flexible in a very, very simple way.'* He maintains that students are

surprised when they first see it, simply because they are unused to seeing well-resourced spaces in a university setting: it has *'a positive sort of impact'*. The fact that it is well-located, close to the main entrance on the ground floor of the campus, and connected to/ integrated with other surrounding public and private spaces, including the café, which forms a natural, easily-accessible break-out space for students using the room, is also significant. It has high visibility, although its name and function is not always understood, and its physical transparency, with glazed walls on three sides, means that spatially its boundaries are relatively fuzzy. It is an important *'physical focal point... it helps that it's on the ground floor and it's easily accessible... in the heart of the university building'* (T2).

*'The windows and the glass make a lot of difference'*, comments Tutor 2. They make it *'a much better room'* than the windowless cinema room in the basement, even though that space might be perceived as a more appropriate venue for technology-driven, projection-based teaching. People can look in, and users can look out, which allows for a natural rhythm in the rate of absorption of teaching material: *'occasionally I do find myself looking out of the window and it's nice to see something... If you want to let your mind wander a little, you can'*; and, *'If all you've got to look at is a white wall, I find it quite hard to just come up with new things. Sometimes I just find myself gazing outside but I'm not really concentrating on the tree and it's not that I'm not listening or not concentrating it's just that my mind is...sometimes racing, sometimes it slows down, processes the information'* (SFG3). The spatial and visual connection between inside and outside therefore seems a significant factor in students' experience of learning in the room.

Again, they contrast the qualities of this space with others which they know in very simple spatial terms: *'[there's] a lecture room which is small. It's got a low ceiling and it's quite dark and quite cold with a big screen in front. We each have individual tables, we each sit in our chairs with lap table thing. They're all separate. We sit next to each other, we all look at the screen... The seminar rooms are all pretty much the same with a big table in the middle and chairs on the outside and maybe a TV screen in the corner'* (SFG3)

Within the CETL-D space, the layout and furniture are perceived as not only inviting, but also as creating an informal and relaxed atmosphere which is not immediately associated with a teaching venue: *'When I first saw the space my impression was it looked like a café or something because of the tables and the mix and the funny chairs, and I thought, that's a bit strange. But... it does actually encourage you to relax.'* Another student describes it *'as a lot less formal'* (SFG3). On the other hand, it is not necessarily that comfortable. Tutor 3 maintains the chairs are *'quite uncomfortable'*, though less so than *'those awful chairs with the little fold-down table.. which are really uncomfortable and isolating for students'*. She in fact would like to introduce some beanbags, and perhaps a sofa. Tutor 2 (an architect) maintains it doesn't make a big difference whether you have *'an Eames chair or a standard plastic bucket chair'*, but on the other hand, distinguishes the furniture here from that of other teaching spaces which have *'not very nice*

*chairs and tables, are not well lit, and have IT equipment that may not work', and therefore are less pleasant to use – indeed, may even make 'you feel like second class citizens' (T1).*

The drawback of furniture that clearly looks 'designed', and possibly more appropriate to another sort of environment, is that it may be intimidating to some users, in terms of the aspirations which it symbolises. Although one describes it stimulating - *'so modern... I want to come up with innovative ideas here'*, it also raises the bar of expectations: *'it seems more modern here, not just the interior, but also the way of working here seems more millennium-ish'*. For one History of Art student that is somewhat daunting: *'because of the design, chairs and the colours and the tables and the fabric on the sofas, it seems very sort of modern and creative and innovative... I sometimes feel slightly pressured into being creative and I'm not really...'* (SFG3).

On the whole, however, the informal quality of the furniture in the space is clearly perceived as facilitating group interaction and ease with each other. The fact that it is all moveable, and the tables relatively small in size, is valued as allowing easy reconfiguration and grouping, which also promotes discussion and voicing of individual opinions: *'the way we're sat means that if someone says something and has an opinion, you can then make eye contact with them and you have a discussion and other people can join in. It's not one way'* (SFG3). Although the tables are not big enough to hold a lot of material, they are sufficient for the notebooks that students use, and the sessions held in here are not necessarily predicated around text books. In fact, in the session observed, the considerable amount of literature distributed was all in the form of A4 handouts.

The students contrast this setting with that of the traditional seminar room, where it is easy to feel trapped around a big table, and incapable of making a worthwhile contribution to a discussion, either because of the feeling of being under a spotlight, with all eyes directed at one point, or because of the difficulty of waiting for a gap in the conversation - *'like crossing a busy street'*. In the CETL-D room, the fact that *'there's chairs facing away from you and in different directions'*, means there are multiple focal points which eases up the flow of conversation - *'with small tables you're sure to have your opinion heard... everybody does have respect for other people's ideas. It's quite a sort of comfortable feeling'*. It is not *'like a ring around you'*, as in the seminar room, where *'there are about 14 of us around this huge table and it does go very, very quiet at times'* (SFG3). In addition, the layout in the CETL-D room allows students to stand up and move around quite naturally - *'I've moved around the tables to check someone else's point of view and have a chat.'* Table space is important, but it's not about working with books or drawing so much as creating interchangeable focal points for group interactions, and for this reason it does not dominate - in fact, Tutor 2 maintains (after a period of not using the room) that *'it really doesn't have a table... I can't remember if there are tables there'* (T2).

The rectangular layout of the room seems to promote a natural subdivision of the space into back and front, with the body of students and

staff generally clustered around the screen at one end, whether or not it is in use, leaving the rest of the space free. Tutor 2 sees this as beneficial, in that it allows students to graduate towards the back or side of the space if they feel like taking a back seat. It also allows the teacher to withdraw from the class at points. Like looking out of the window, this can accommodate the natural rhythms of teaching sessions in a flexible way. *'The set-up of the room makes you concentrate so much on the work because you're so deeply discussing with other people'* (SFG3), but at the same time it is possible to take breaks and let your mind wander, which is relaxing, and allows the teacher also to feel that s/he is not under a permanent spotlight at the front of the class.

One of the distinctive features of both the CETL-D room and the café, is that they are not sealed off from outside sound, and this is another factor which contributes to the sense of permeability and integration of the spaces within a complex of other circulation and habitable spaces. While it might be assumed that noise penetration could be an unwelcome issue, it generally seems not to be the case. Although Tutor 2 is particularly bothered by the sound of the fire doors at both ends of the corridor opening and closing, and feels it could be 'less noisy' in the room generally, neither Tutor 1 nor the student focus group seem concerned about noise. Tutor 1 notes that there is constant 'background noise', particularly conversation from the corridor, but it is not disturbing. By comparison with the shared spaces of the studios, where separate teaching sessions frequently take place in parallel, the room offers a discrete space free of external interruptions. While students are aware of passers-by, they are not distracted by them, because the activities and interactions in which they participate within the room are focussed and absorbing. Only in the café was noise perceived as being a problem, by one student who maintains that it is impossible to use as a venue for teaching activities because participants simply cannot hear each other due to noise reverberation through the space (FS1), which is large and full of hard surfaces, in addition to the sounds generated by the server. She says, you see people *'trying to get together'* (FS1), but, in the end, students become bored and passive because of the acoustic issues. Tutor 2 says she has never attempted to do any classwork in the café space, and never realised it had been designed to work in conjunction with the CETL-D room as a teaching venue, which she finds interesting, but she does meet her colleague there *'sometimes, to go through work'* (T2).

The students make it clear that their experience of the CETL-D room overall is very positive in terms of making them feel more *'grown-up'* and *'professional'* (SF1), and that they are engaged in a mutually respectful, stimulating and productive dialogue with the teacher. While their comments relate specifically to one particular course and tutor, they do also evoke the space itself as a factor in their experience: *'it's so different from a normal lecture room where you feel very much like a student and the lecture is in front of you, sort of listening with a notepad, whereas you're authoritative in a way and your opinion matters too'* (SFG3). On the other hand, Tutor 2 seems less convinced that the physical setting is a significant factor in opening up the teaching approach to become more student-orientated, with

*'a greater emphasis on students presenting their own work and you not just presenting material to them'* (T2). She stresses that *'I've taught in loads of spaces.. barracks, police headquarters... you just make do with what's there. You can't afford to be too fussy'*. She downplays the CETL-D room as just *'a classroom with multimedia,'* in which she relies on the paper flipchart, handouts and physical objects as much as, if not more than, projected presentations and other technological input to create dynamic, interactive sessions (one of which included a 'speed dating exercise'), in conjunction with careful lesson planning and strict timekeeping to maintain order and focus. She recalls one student who expressed the feeling that the room had been *'a missed opportunity'*, that there could be *'more in there to make different things happen... magazines, arts and other things'* (T2). Tutor 1 also agrees that, although the room promotes flexibility in the teaching approach, based on simple group-working strategies (so long as they are controlled and directed, in Tutor 2's opinion, to prevent students scattering and excluding themselves), it has not changed his teaching practice. However, he considers that it might do if there were more rooms like it available, offering greater opportunity to explore alternatives to standard procedure – a significant point in consideration of the value of this type of space in the university setting.

b) technological infrastructure

Both the CETL-D room and café spaces are equipped with sockets and internet access, inviting use of individual laptops in addition to the integrated system. They indicate that you can come and *'just hook up'* (FS1). *'If there are that many power sockets then they're expecting people to have laptops'* (SFG2): however, as the focus group point out, there is only one student on the course in question who actually uses one: *'I'm the only one.'* They suggest that personal technology does not play such a big role in the learning experience as might be imagined, and point out a number of reasons why many students may not wish or be able to use a personal laptop computer, notably: cost, lack of a printer at home, slow typing speed, noisiness of typing in the classroom, and anxiety about losing or damaging portable equipment and its contents while on the move.

According to Tutor 2, students do bring in memory sticks and mobile phones for presenting and recording work, and the facilities are there to use them. This is important in terms of preparing them for professional practice later. But, in the session observed, the prevalence of intensive note-taking using traditional pen and paper was notable. In addition, the flipchart rather than the large projection screen on the end wall seemed to be the key vehicle for the teacher to provide information to the class and direct the discussion, in a physical and interactive way, manually and spontaneously recording *'things that pop out during the lesson'* (T2) as the session progressed. Tutor 2 says she would really prefer to have *'a simpler form of technology that I know how to use and is reliable'*, than a more complicated system that requires the input of a technician, even when, as in this case, that person is located in close physical proximity in the office next door as an integral part of the set-up. According to Tutor 1, the technology is no more

complicated than in a standard modern lecture theatre, but it still requires help in setting-up and using it.

Surprisingly, there seemed to be some resistance among the particular student group interviewed to the principle of technology, a fact which may partly be attributable to the fact that they were all History of Art students and considered themselves to be essentially more orientated towards textual than visual material. *'I get the feeling that technology is being used for the sake of it... they've bought all this technology and they have to use it... I don't like the feeling of technology being forced upon us'*, says one. Another suggests that tutors' use of pre-prepared PowerPoint presentations effectively structures lessons much more tightly, whereas, without it, *'discussions kind of evolve'* and become more freeflowing: *'you're never quite sure where it's going to go and where you're going to end up... it does feel a lot freer'* (SFG3). In addition, PowerPoint can deliver too much information too fast: *'I felt like I was being shot with information. It was coming at you so hard and fast.'* Finally, there is the problem of teachers' over-reliance on the equipment, and the support staff, and the ever-present risk of technological failure: *'I really hate it when they pressurise... just because they've got it and we've spent all this money on this. I kind of remember interactive whiteboards. Every single teacher felt like they had to use them. If it didn't work that was it, their entire life broke down'* (SFG3).

### c) status and image

In common with the other new learning spaces in question, CETL-D is widely regarded as a facility which represents a bridge between the university and the outside world of professional practice, through the use of design to create a modern, professional, and sophisticated appearance for the space. It is quite a 'controlled' space (T1), which does not allow for a great range of activities, and certainly not messy ones, but it enables students to feel less like children, and more equal with the staff who teach them, who may often themselves be employed in the non-academic world which students hope to join themselves once their courses are finished. This gives them enhanced status in the students' eyes, and the room provides a fitting setting for their engagement with what they bring in from outside: *'you want to learn... this person's opinion can be trusted because they're actually doing it... somebody that's doing it and taking a little bit of time out to then talk to you about it.'* There is a perception that this may be the only appropriate space in the university to accommodate this exchange. As one student says, *'the first time I saw this room I didn't know that we were going to have classes in here. People were sitting in groups and it seemed very project-based. Almost like a consultant office or something where you sit in a group and you brainstorm and have all these ideas and intellectual discussion. So I was quite excited to get in here. It seems as if it was a slightly more advanced level where you'd have your own ideas and discussion and develop your take on things - learning rather than education.'*

In some way, then, the room is perceived as a high-status venue, which has *'got a purpose'*, is *'serious... challenging'* (FS1), and in which users themselves become elevated to a higher status or level of engagement – not

only while in the space, but also subsequently, through its stimulating effects: *'this is the only class I've ever done where every week I will go home and I will write up my sketchbook'*, comments one student (SFG3). It is not, in contrast to Leonardo, about play and loosening up necessarily, but, rather, in Tutor 2's words, a *'civilised space'*, which almost approaches her fantasy of *'a space where you go in for a civilised academic chat'* (T2). For Tutor 1, it is *'a bit like a front parlour'* – an appropriate setting in which *'you can welcome a [high-profile] visitor'*. This status is reinforced by the fact that it is easily accessible, on the ground floor, near the entrance to the campus, and highly visible through its glazed display cabinet, giving a view onto red, white and black items of furniture inside, which are *'obviously meant to be examples of good and innovative design'* (SFG3), putting out a specific message.

But, at the same time, and paradoxically, it is not highly visible. As Tutor 2 points out, the name means nothing to most students, and many of them don't know what its purpose is or whether they are permitted access to it or not: *'most students don't know what it is... it's surprising'* (T2). The display of magazines inside suggests free access and browsing, but in fact there is a perception that it can only be booked for use, and you cannot just wander in and out: *'you couldn't do that'* (FS1) – even though there is a notice clearly displayed by the door which says there is free access on Mondays and Fridays. There is a sense that it has *'the potential to be more heavily used'* (FS2), but the booking system establishes clear boundaries around its use which effectively gives the facility invisibility except to those in the know about how the system works. The problem, as perceived by Tutor 1, is that if such spaces *'become too visible, you'd need lots and lots of them'*, because everybody would want to use them. Hence the system works well *'in this transition phase'*, but could break down under pressure of demand.

It seems clear that, from the university's point of view, it is important to maintain clear institutional boundaries around the use of the space which perpetuate its high status, and provide a focal point for interactions and *'mixing'*, not only between staff and students, and insiders and outsiders, but also students from different courses and age groups, which stands apart from, and untarnished by everyday use. Students and staff also value such venues, but regret that they do not represent a more normative and easily accessible part of the teaching/ learning experience – especially when physical space is at such a premium. As one student puts it, ideally there would be a *'Palace of Creativity'* (FS2) to which all students would have the privilege of access to such spaces on an extensive scale.

#### 7.4 summary comparison

All students and staff interviewed placed a value on the new learning spaces and their impact on their learning experiences, emphasising in all cases to greater or lesser degree:

- physical comfort and mobility as key to engaging and sustaining concentration, particularly at Leonardo and InQbate
- incidental activity and environmental interest external to the space itself as significant in sustaining attention, particularly at CETL-D

- flexibility in spatial organisation and seating as facilitating group work and support which encourages self-expression, exploration of ideas, and acquisition of presentational skills for professional life
- technology as offering the potential for high quality visual and multi-visual presentational delivery and immersion in teaching materials, and feedback from students – though not always used to its full potential
- productive interactions and mixing with other students and outside visitors from the world of industry in a dedicated, well-resourced, high status space
- design quality and a good standard of resources, particularly at CETL-D, as raising aspirations and self-confidence

The main drawbacks which staff and students identified were:

- exclusivity or lack of accessibility – too few sessions held in the spaces
- costliness of equipment and finishes, and onerous health and safety regulations, both prohibiting student ‘ownership’ and full engagement with spaces
- prioritisation of outsiders’ use of spaces for financial gain, and at students’ expense, and use of spaces in an advertising capacity by the university
- pressure to use and show off technological resources which are not really necessary for teaching purposes and may have an ‘over-structuring’ effect on teaching sessions
- lack of access for students to technological resources, due to complexity and need for technical support
- lack of advance warning of use of spaces and time in which to prepare material which makes best use of the resources offered
- failure of staff to use resources to their full potential (either due to lack of time, interest, or expertise)

### 8. *concluding comments*

The JELS report (Pearshouse et al 2009) highlights the need to find new methods of assessing the impact of innovative, technology-supported learning spaces which go beyond conventional post-occupancy evaluations and surveys. As it points out, the latter are typically carried out as part of an internal institutional process, or student satisfaction assessment. They are not intended for wider dissemination and knowledge sharing, even though many HE institutions are constructing new technology-supported spaces for student learning, and there is a clear need to develop a knowledge base around the subject of their design and its impact on the learning and teaching process.

As discussed in the introduction to this case study, the research presented in this report relied on traditional ethnographic methods and approaches also increasingly used in the healthcare sector in the form of IPA. The scope of the research, in terms of time, budget and personnel, was strictly limited and therefore made it impossible to employ self-declared ‘innovative’ research approaches, using specialised technological resources or advanced software, or to study very large samples and vast quantities of



data. Instead, it focuses on very small samples, but nevertheless has produced a wealth of valuable data which offers extensive in-depth insights into the issues around space, learning and the larger institutional context within which they sit.

Again as stated in the introduction, the objective of the case study was not to measure impact, but to assess and interpret perceptions of impact communicated by respondents, within the framework of the researcher's own observations. The findings present a range of positive and negative responses, and a level of comparison across three sites, which provide a starting-point for further consideration, analysis and external publication, potentially as part of a proposed volume, *Re-shaping Learning: the future of learning spaces in post-compulsory education*, to be edited by Anne Boddington (Director, CETL-D, Brighton) and Jos Boys (Senior Research Fellow, CETL-D).

From an architectural point of view, and within the framework of the architectural literature and traditions of radical practice around the design of buildings and spaces for education (Literature Review, pg 5), the spatial design of the three sites in question is not in itself strikingly innovative. Only CETL-D has been conceived as an integral part of a holistic architectural concept (as one of a series of new spaces which activate the perimeter of the quad), and as, in some sense, a design showcase per se. On the whole, the new spaces may be seen as presenting fragments of innovatory thinking around the physical setting of learning, wrested from a context of recycled, everyday, institutional space. The borders and thresholds between the ordinary and the unusual, the pre-existing and the re-formed, are somewhat ambiguous. This has resulted in a frequently articulated sense of their physical 'invisibility' within the institutional setting which militates against their impact, notwithstanding a clear institutional intent to deploy them as advertising resources in the competitive market for higher education.

What we find is a set of three fairly neutral, white-painted rectilinear spaces. What makes them stand out, less in design terms than in terms of their educational function and purpose, is the fact that they are subdividable and reconfigurable, with moveable panels and seating, to enable variation in teaching scenarios. In addition, they are kitted out with a technological infrastructure, differing in complexity at each site, which is managed by a dedicated on-site technology-support team, and provides a resource for generating sophisticated, variable, visual and audio outputs which enable the space to be 'dressed-up' to different degrees as part of the teaching and learning process.

These are the key differences between the new spaces and conventional, fixed scenario teaching spaces, and it seems clear that, as such, they are perceived as venues which offer something 'special' compared to standard university teaching, which acknowledges and accommodates students' right to material and physical comfort, facilitates and enhances their sense of participation and of the value of their contribution, and represents, through the medium of material culture and a particular type of student-teacher relationship, an explicit link between the educational process and the professional world of work beyond the university. This perception is

generated not simply by the availability of technology, about which, and contrary to expectations, some students express some scepticism; but by the whole configuration, materiality, and image of the rooms as orderly, sophisticated venues in which students feel more like 'adults' and less like 'children'. In this sense, the new spaces have both responded to and provided a resource for the further development of new student-centered paradigms of flexible and responsive teaching which go beyond the deployment of technology, and recognize the need to produce creative, confident, employable students ready to enter viable occupations.

However, it is also clear that access to the new desirable spaces remains limited, and that universities would do well to invest more money in the construction of additional resources of this sort. Perhaps, in this case, there is scope to consider how much further design innovation in the university setting might go, and how far students and staff themselves might be engaged and involved in that process in a meaningful way, as part of the teaching and learning continuum.