

The Engineering CETL learning space at Loughborough
Evaluation report of outcomes, with recommendations
July 2008
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Introduction

Appendix A shows the work schedule for this evaluation process. The programme, activities and this report do not follow recognised 'rules of engagement' for evaluation in that an evaluation report normally describes the process and outcomes in a structured format, and it may identify lessons learned. It does not, however, normally provide recommendations or any significant form of discussion of the outcomes – that is usually left for the recipients of the evaluation report. The inclusion of recommendations and discussion of development potential places this work and report in the realm of 'evaluation consultancy' rather than simply external evaluation.

1 The process

There were six stages in the process:

1 Analysis of the relevant documentation

The starting point was the CETL bid document itself. This was analysed to identify the purpose of the CETL and the initial plans for the design of the learning spaces.

Comprehensive documentation relating to the needs analysis and the design process was provided for analysis. Together, these provided a formal, written, record of the processes on which further work was based.

2 Focus group meeting with key central engCETL staff

This focussed on the needs analysis process and the design and build. The result of this focus group meeting is fully included in the main body of this report.

3 Structured interviews

These were carried out with each of the Departmental CETL seconded staff, plus two other heavy users of the space (29 May 2007). The purpose was to validate the needs analysis information previously identified and to gain insights into the current use of the learning spaces and equipment (referred to together as 'the environment'). These were complemented by a structured interview with the CETL manager (10 May 2007), extended discussions with the CETL Director and interview with the engCETL administrative staff (16 July 2007). The results of these structured interviews are fully included within the main body of this report with the exception of the administrative staff interview found in Appendix B.

4 Focus group meetings with a selection of students and 2 staff 'users'

The student focus group was held on 29 May 2007 in an engCETL breakout room and focussed on identifying the different ways in which students used the learning space, and on student reactions to the space. The purpose was to identify the strengths and weaknesses in the design

from a user perspective. A full report can be found in Appendix C. The results of the focus group meeting of 2 academic 'users' are included in the main body of this report.

5 Structured interviews with professional staff

This involved representatives from the Estates department and from Media Services on 12 June 2007, see Appendix D. The purpose here was to gain insights into the professional perspectives around learning space design, and to identify the potential for exploiting the lessons learned from engCETL across the University.

6 Regional and national workshops

An East Midlands Regional CETL and National CETL network workshop were offered in the spring of 2007. Although these workshops were primarily intended to disseminate initial evaluation outcomes, they were also used to gain feedback from other CETLs on how they were evaluating their learning spaces and on the lessons learned from their evaluations. The reports can be found in Appendices E and F.

2 Creating the learning space

2.1 Needs analysis

Wide consultation was thought to be necessary for a number of reasons:

- There was a need for the CETL to be able to justify its decisions
- It was felt that a consultation exercise would develop ownership by the key user constituents: the CETL staff, Engineering Departments, students, and industry.
- The CETL wanted to ensure qualified and expert input. This would involve Media Services, IT and the Estates Department
- It seemed axiomatic that broader consultation with experts in the field would ensure that they 'got it right'

Appendix G (produced by Dr S Bamforth) shows the processes and people involved in the design process. The space plan in the Stage 2 bid document was produced by two members of the bid team in consultation with departmental Learning and Teaching Coordinators. This plan provided the basic elements of the learning space, but gave no internal detail. For the needs analysis, this plan provided a starting point and input to initial discussions. The process began with a meeting of CETL staff which identified the key issues for consideration. This was followed by an open meeting of CETL staff, and staff were given the opportunity to provide written feedback. This provided a range of issues for circulation to departments for feedback. The seconded departmental staff were used as a conduit through to the department and they had responsibility to provide responses to the issues identified.

Feedback from the departments was collated and analysed, and conflicts were identified for further consideration by departmental staff. Student views were sought through a student focus group meeting. Each department nominated two student representatives. Most of these students had spent a year on industrial placement. In a single focus group session, preset questions were discussed and the outcomes were presented to a staff meeting for consideration.

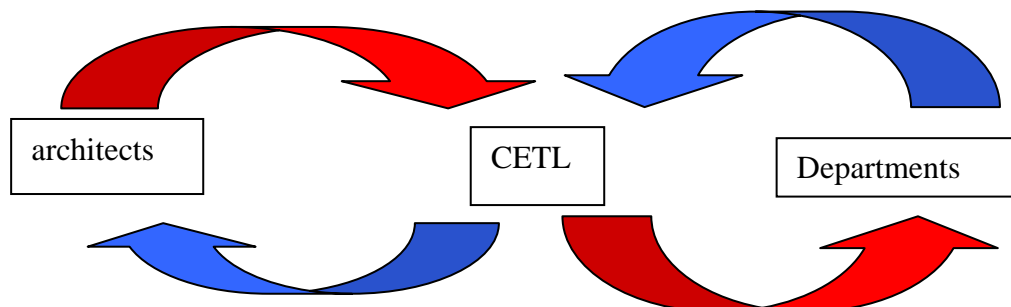
The process within the CETL was quite tightly structured. However, the CETL had little involvement in the departmental processes. In most cases, either the seconded staff had substantial experience of teaching design, or they liaised with a small number of staff who had. Departmental processes therefore involved informal discussions with these staff and feedback was based on their experience, conceptions and needs.

The process confirmed the need for a large design studio (flat floor, flexible space, capacity 64 [eventually reduced to 48 or 36 when seated around desks]) and four breakout rooms, each to accommodate 16 students in 4 groups of 4. Equipment needs focussed on a networked PC, interactive whiteboard and screen. To suit industrial purposes, the space was to be open plan as much as possible and furnished and decorated to a high specification.

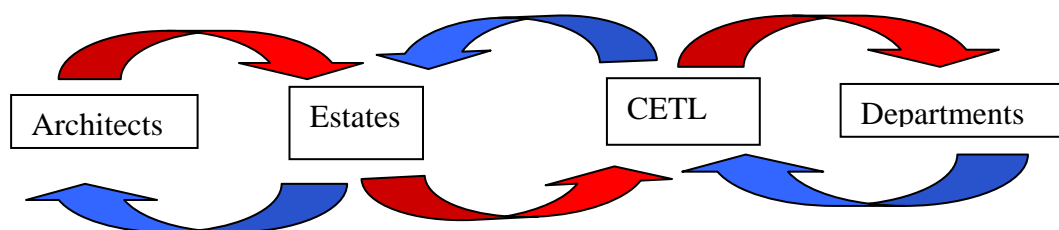
2.2 Design and realisation

The output from the needs analysis was provided to the architects, who established limitations (e.g. room sizes, toilets) and trade-offs (open plan offices versus discrete office spaces, room capacities).

Throughout the design stage, although the Estates Department was involved, there was a period when the architects discussed design plans directly with the CETL. Questions, issues and considerations were forwarded by the CETL to the departmental secondees, who provided responses.

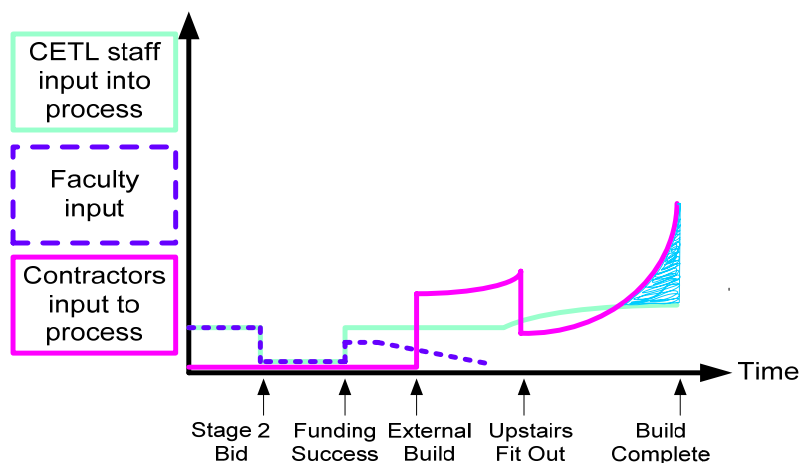


As the process developed, the Estates Department provided a gateway between the architects and the CETL staff. Ad Hoc communication between the CETL and the architects was discouraged by Estates as a means of maintaining an appropriate awareness of decisions, to ensure costs did not spiral.



As the process moved to build and especially the finishing stages there was a feeling of a loss of influence by the departmental staff; the influence of the Estates Department grew; and the influence of the

engCETL diminished, though not as much as academic departments. Similarly, there was a feeling that, as the process developed, there was a reduction in satisfaction with developments which matched a reduction in the time and involvement of the CETL in the process. Overall, though, the CETL welcomed the expertise of the Estates Department and Media Services, and departmental staff reported being very satisfied with the process and outcomes.



As the build progressed faster, decisions had to be made faster, however at this point, without the realisation of the CETL the input of the CETL was significantly less than it had been previously by comparison to the contractors, therefore decisions the CETL didn't know were happening were taken without the CETL's input.

2.3 Lessons learned

1 Close involvement in the process creates high expectations. As practical and regulatory restrictions begin to have an impact, the ideal view of the space becomes compromised and expectations are sometimes not met, or met only in part. This can result in a reduction in morale and sense of loss of ownership.

2 Closer (and more continuous) involvement with both the architects and the Estates Department would help to ensure that CETL needs are met and that any divergence from original plans are understood.

3 It is not always necessary to accept the options presented. For example, the Estates Department provided options for the colour of the carpet. The CETL made a choice, but perhaps might have asked why carpet was felt to be the best form of floor covering. Although other options were discussed, they were not pursued as options were limited by contract and practical limitations e.g. suspended floor and access to floor void.

4 It is necessary to be as assertive as possible, even when dealing with matters in which the CETL does not have any expertise. For example, the CETL was not consulted on small but important details such as the placement of fire alarm speakers, which were mounted in the middle of some walls, thus compromising their use for pedagogic purposes. Had the CETL been consulted, then there was the possibility that they could have

been mounted elsewhere. Since this is an important feature of the breakout rooms, the CETL should have been consulted and in doing so could have highlighted the pedagogic needs of the design process.

2.4 Impact of the process

The final design of the CETL space is not significantly different in concept from that provided in the bid so it may be argued that significant time and resource yielded little benefit. However, the major impact of the needs analysis may be seen in the detail and in the equipment in the learning spaces. Beyond this, there were several further outcomes of benefit to the CETL programme:

- Those staff from departments who were involved in the process became more engaged with the CETL and were more ready to use the learning spaces.
- There was a greater feeling of ownership of the space by the CETL team.
- The process raised the profile of the CETL across the university and has had an impact on it. The CETL is seen as a 'flagship' learning space for the university.
- The Faculty has a sense of pride and confidence in the learning space.
- Finally, the CETL is confident that they have undergone a professional and ethical approach to the design of the learning space.
- The significant portion of CETL time put into the start of the process has resulted in a high quality learning space. Had this input been ramped up towards the end to match the pace of the build process then some of the awkward elements of the fine detail which affect the use of the rooms could have been avoided.

2.5 Discussion

The consultation exercise involved only a small number of academic staff, although they did have considerable experience and expertise in teaching engineering design and as Learning and Teaching Coordinators they represented their departments and acted as a conduit between the CETL and the departments. However, since academic staff and students would be the main users of the space, it might have been useful to engage more widely with Faculty staff and students.

The involvement of The Estates Department in the process was invaluable although sometimes seen as a hindrance when communicating with the architects. However, this is an essential involvement for a number of reasons, including:

- The contract between the architects (and builders) and the university lies with the Estates Department.
- The Estates Department has expertise in negotiation with architects and builders.
- They have an essential role to play in ensuring that regulations are followed (such as access, health and safety, toilets etc.)
- Estates have relevant expertise and advice to offer the CETL

The issue may be that the involvement of the Estates Department in the design and build process should be sought at an earlier stage. In this way, they would be able to moderate (perhaps unrealistic) needs before they become expectations. At the same time, the Estates Department would benefit from developing a greater understanding of the pedagogic implications of space design. Early involvement would afford a greater sense of team involvement, and a greater understanding of different perspectives. It would also help to build trust.

3 Using the learning space

3.1 The evaluation process

The central process was a series of structured interviews with each of the departmental seconded staff. This was followed by two focus group meetings, the first with 8 students representing 4 departments and the second with 2 staff 'users' in one department.

3.2 Models of use

3.2.1 Aeronautical and automotive engineering

Automotive

Students work in approximately 10 groups of 6 to 8 students (depending on the class size). The focus is on a design brief. Each student group is scheduled on a regular basis for a design review meeting of 40 minutes in one of the breakout rooms. One member of staff leads the review meeting. Normally only one review meeting is held at any time because of staff constraints, so student groups rarely get to share progress. The process is also supported by regular day-long clinics. A member of staff is available all day and student groups book clinic time with them in order to address any areas of uncertainty or difficulty. Not all group members attend these meetings, but delegate the responsibility to one or two members of the group, who feedback outcomes to the rest of the group. Both the review meetings and the clinics are timetabled by the staff.

Students are also able to book the breakout rooms for further group work, study or revision as the need arises. Not all students make use of this resource, but many do.

Aeronautical

The process is similar to automotive, except that students work in 3 or 4 teams of 10 to 12 students. The review meetings take place on Thursday afternoons, all groups meet at the same time and each group is assigned the same breakout room for all meetings. Students report progress to a member of staff and ensuing questions are addressed. These meetings are underpinned by a lecture in the morning. This takes place in the design studio.

3.2.2 Chemical engineering

Process design is taught in some year 1 modules, expanded in year 2 and repeated in years 3 and 4. Students are organised in 15 groups of 4; each

group is assigned a tutor and meets formally (i.e. timetabled) each week. The small group size means that it is possible for these meetings to take place in staff offices. However, some staff choose to book the CETL breakout rooms. At times, a common pedagogy of 'plenary lecture followed by breakout groups' is followed using the design studio for the plenary and breakout rooms for the group sessions. Additionally, the CETL space is booked for special one-day events at which industrial partners work with the students.

3.2.3 Electrical and electronic engineering

Design is embedded within the EEE curriculum. In year 2 (part B), students are introduced to the 'Stamp Olympiad'. The class of approximately 80 students is organised into 4 companies of 20 students. Four robotic Olympic events are defined, (such as sprint, basketball, javelin and high jump), and each company must design and build a robot to compete in each of the 4 events. Students often sub-divide into 4 sub groups (of 5). Each company has a weekly board meeting, held in the design studio. The board is chaired by a departmental professor and several staff act as consultants to the company. The competition is held in the design studio at the end of the semester. Students are encouraged to book breakout rooms for their own use, but it is not known if this happens.

3.2.4 IPTME

Design is focussed around individual and group design projects. Rooms are booked by departmental administrative staff, who prioritise the university's pool booking system.

3.2.5 Mechanical and manufacturing engineering

The focus here is on the industry based project. Seven companies are established, each comprising of 4 teams of 4 students. This results in 28 different groups of 4 students. Each group is supported by a staff tutor and a year 4 student mentor. Hence, group sizes may be up to 6. Weekly group sessions are timetabled in a two-hour session, with 14 groups meeting for one hour each. Since the CETL does not have this capacity, approximately half of the groups meet in the CETL and the remaining groups meet in the departmental or pooled rooms. Occasionally, the whole company meets and industrialists are invited to join these meetings, giving rise to meeting sizes of up to 22. The CETL design studio is often used for these meetings.

3.2.6 Design and Technology

This department makes occasional use of the space for special, full-day, events which involve external industrial experts. (The location of this department on the other end of campus hinders greater use of the teaching rooms.) These events follow the model of plenary (design studio) – breakout groups – plenary.

3.2.7 Student use

Clearly, the students used the learning spaces according to the requirements of the academic staff during timetabled teaching sessions.

However, additionally, the students used the breakout rooms in a range of ways:

- They booked these rooms for student-led follow-up group activities in support of their design task. Often, designs were developed over a period of several weeks or more, and the students found it helpful to meet outside timetabled classes to pursue their designs.
- Some students formed study groups throughout the year, and used the breakout rooms to facilitate these study sessions.
- As exam time approached, student groups also found it helpful to study past papers in groups and often booked the breakout rooms in which to work.

3.3 Benefits of using the CETL learning spaces

Design studio

1. The design studio was seen to be well designed and suited to plenary sessions, lectures, demonstrations and whole-class events.
2. The co-location of the breakout rooms and design studio allow for group sessions to be integrated into a class-wide event. The model of plenary – breakout group session – plenary is particularly well supported, if not always exploited.

Breakout rooms

3. The spaces were designed for the specific purpose of supporting design pedagogies. Many applications require small groups of students to work together and the breakout rooms were seen to be ideally suited to this purpose.
4. The main benefit identified by students was the quality of finish and appearance of the space. The design and finish encouraged focussed activity around the design tasks. Students reported that they were much better motivated to study in the breakout rooms than they were in the University library's group rooms. Factors included the brightness of the rooms, natural light, flexible and comfortable furniture and having a feeling of space to move around. The students felt able to study and concentrate for longer periods in this type of space than elsewhere in the university.

Equipment

5. The rooms were felt to be well equipped, although there was a clear recognition that not all the equipment was being used effectively (or at all).
6. The flexible furniture in, and layout of, the design studio were seen to be very supportive of effective plenary, lecture or group sessions for up to around 50 students.
7. During student-led group study and exam preparation sessions, the students found it useful to be able to project papers, lecture notes, exam questions or other documents on the screen and to be able to record their thoughts, solutions or outcomes on flip charts or the whiteboards. This allowed the students to work effectively as a team.

3.4 Drawbacks

1. The key weakness identified was the lack of refreshments. Students particularly felt that they would welcome the inclusion of a water

fountain. Beyond that, they felt that they would work for longer periods of time, and more effectively if they had access to coffee/tea. They also reported the desire to bring food into the breakout rooms.

2. Students were unaware of several of the facilities, and, in cases where they knew about them, they had not been shown how to use them, so they tended not to do so. An example of this is the interactive whiteboards and they felt that these were too difficult to use. This was also reported by the staff as a reason not to use them. The situation was even more strongly reported for the touch screen in the design studio.
3. Students felt that they often needed to be able to share thinking on for example, a flip chart or whiteboard. However, whiteboards suffer from the drawback that they fill up quickly. The students often had to take a photograph of the board on their mobile phones for recording purposes. However, once the board was wiped, the information was lost for immediate reference. Flip charts required the availability of many sheets of flip chart paper. Students were unaware of the use of the interactive whiteboard for this purpose (multiple pages can be created on the whiteboard, with one page holding, say an exam question or paper, leaving the other pages for student workings and recording outcomes. Students can easily move from one page to another as required. The final page set can then be saved as a powerpoint presentation and emailed to all students in the group).
4. Students also reported that they would welcome the availability of application-specific software on the PCs.
5. Many students brought laptops to their meetings, and reported that it is difficult to connect them to the data projector.
6. Staff reported that they and their colleagues would be more likely to use the facility if an overhead projector was provided.
7. There are different models of use. Some models require the facility to book the space on a regular basis (same day and time for the whole semester or year), while others require the facility to make a one-off full-day booking. Low confidence in either regular booking or one-off booking resulted in some staff opting to book some other space.
8. Only one member of staff reported using the video facilities, but felt that it was problematic. He had little confidence at the moment in the system and only felt able to use it with technical support and a portable back-up.

3.5 Barriers

1. Many staff and students were unaware of the CETL space. Many of those who were aware of its existence were unaware of the facilities and advantages it provided.
2. Some staff were not prepared to use the facility unless it had an overhead projector available.
3. Many of the technical facilities were not used as staff and students did not know how to use them.

4. Generally, the situation in regard to availability, booking and condition of pooled rooms was not seen to be 'bad enough' for staff to overcome the inertia of booking the CETL space.

4 Recommendations

Many recommendations can be derived directly from exploiting the benefits and overcoming the drawbacks and barriers to use listed above. Beyond this, there are several recommendations for the development of the space, and its use, for the benefit of the Faculty.

4.1 Raising awareness

1. It may be possible for relevant staff to book the design studio for departmental, course or other formal staff meetings. Although this is not the primary purpose of the space, it would ensure that staff visited the CETL and became aware of its facilities. This would be enhanced if some staff used the equipment during these sessions in order to demonstrate their benefits. Would a small interactive whiteboard next to the large screen in the design studio help?
2. In regard to student awareness, priority might be given to timetabling student sessions in the CETL early in the semester so as to expose them to the facility and to encourage them to book it for their own use. Offer to demonstrate use of interactive whiteboard etc.
3. Offer sessions for equipment training before the start of the academic year, focused on those who have booked the facilities. The CETL might consider the benefits of commissioning the development of an introduction, training or demonstration package on the use of the interactive whiteboard.
4. An electronic booking system was felt to be appropriate.

4.2 Extending use

Students felt strongly that they would welcome extended opening hours. This might initially be provided at particular times of the year (week 6 onwards), on specific evenings only (say 2 evenings a week), or for limited hours (say until 7pm). Evening use could be self-policed by postgraduate students. Perhaps it would be helpful to have a graph showing overall usage by students to determine peak periods. Could the design studio be used as a drop-in for several groups at a time when breakout rooms are all booked out? The use of the space beyond the end of the funding period should also be considered.

4.3 Agent of change

It seems clear that the CETL space is a learning research space and not just a teaching space. Hence the focus should not be volume of use, but about lessons learned from its use and disseminated to the Faculty and beyond. In this way the space becomes an agent of change rather than a short-term solution to the lack of, or inappropriate teaching accommodation elsewhere in the University. The lessons learned should be written up in a way that can be used across the university and beyond to help input into the design of future learning spaces.

4.4 Dissemination and publication

1. Good practices need to be evaluated and disseminated. Existing practitioners should be encouraged to do this. The focus of their interaction with the CETL in future years might therefore be on evaluating their practice with a view to producing case studies of good practice.
2. In this context, practice should include both formal, timetabled, tutor-organised use and informal, flexible, student-organised use (study sessions etc.). To this end, students would need to be engaged in recording these practices (alternatively, they could be observed or video-recorded, with permission).
3. A model of attracting new users should incorporate evaluation and dissemination of practice.
4. For both existing and new users, models of encouragement of the above might be applied. These might include funding support, external consultancy in the form of ethnographic research (observation of practice), and journalism (where case studies are written by a third party on the basis of an interview)

4.5 Disseminating the lessons learned

Within the Faculty - Developing and defining an engineering pedagogy

1. Design is a powerful pedagogy in engineering. There is great potential to research, develop, and evaluate practice and to produce a significant publication. This might include theories of student learning in engineering populated with case studies.
2. There is scope to disseminate practice across the faculty through an annual teaching and learning symposium. Significant users of the CETL spaces might lead seminar sessions and students could be invited to contribute.
3. It is worth reinforcing the potential of the learning space as an 'agent of change'. Future research and evaluation could focus on how the design of the learning space has led to a change in practice by those who use it, both staff and students. This completes the cycle: the space is designed according to a needs analysis which identifies the pedagogic practices within engineering design; this creates a 'new' learning space; which, in turn, offers new opportunities for staff to develop further their teaching practices. Student feedback and models of use further contribute to the development of enhanced pedagogic practices.

Across the University

There are generic practices and approaches to learning, including student-led study sessions, and the use and potential of learning technologies, from which the University could benefit. Further, there may well be developments outside the CETL from which the CETL can learn. Working with other agencies across the University, it is possible to develop generically applicable pedagogic principles and principles of learning space design.

Across the Sector

There are many lessons already learned about learning space design and use, which will be of benefit nationally. Sharing these lessons in appropriate forums will afford the opportunity for the CETL to gain insights into other developments in learning space design. Specifically, it might be appropriate for the CETL to organise or contribute to a national event that focuses on lessons learned from CETLs in the design, use and development of learning spaces.

Further Reading

A few references on both the design of learning spaces and the design of engineering design.

"Designing Spaces for Effective Learning", JISC Report, March 2006
Includes a case study on the Department of Design, Manufacture and Engineering Management at the University of Strathclyde, report had input from other CETLs.

<http://www.jiscinfonet.ac.uk/infokits/learning-space-design> (last accessed June 2008)

Related publication arising from above report. The kit is comprehensive and includes a section on evaluating your learning space, plus many more related references on learning spaces to explore.

"Spaces for Learning", Scottish Funding Council, 2006
A review of learning spaces in further and higher education, with a Scottish focus, intended to encourage discussion between estate management and academic staff on the best form of campus developments.

"Environmental Design and Educational Performance", Edwards B. W., Research in Education No. 76
A research paper, focused on schools, which investigates the argument that attention to environmental conditions in the classroom helps support the delivery of the curriculum.

"Engineering Design Thinking, Teaching and Learning", Dym, Agogino, Eris, Frey & Leifer, Journal of Engineering Education, January 2005
Reviews the history and role of design in the engineering curriculum and looks at enhancing design learning.

"Teaching Engineering through Design: a Novel Approach for a Department Level Reform Project", Fortier & Mitsa, Proceedings of the 39th Hawaii International Conference on System Sciences, 2006
Description of a project to develop curricula to help engineering students to become creative designers.

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July 2008

Appendix A

Project Brief: Evaluating the engCETL learning environment

The overriding **aim** of the project is to evaluate the use and potential of the CETL learning environment¹. This will be approached from a pedagogic perspective, rather than as a monitoring or resource use exercise.

Particular **objectives** will include, but will not be limited to the following:

1. Use of space

Identify if there is any link between the outcomes of the initial staff survey of needs and the ways the environment is actually used

Identify staff use of the space - how they use it and why they use it

Identify student use of the space - how they use it and why they use it

Identify why staff do NOT use the space

2. Benefits of the particular components of the environment

(large design studio, breakout rooms, resource room, social space, interactive whiteboard, visualiser, other technology)

Identify the key pedagogical benefits of the components

Establish a link between student study practices and the resources available

3. Development potential

Identify ways in which the Faculty can realise the potential of the environment

More effective use of the resources in an orthodox engineering pedagogy

Potential for innovative pedagogies offered by the resources

Identify possible approaches to supporting development plans (including possible staff development, supporting and growing central expertise, the use of student projects and student interns or sabbaticals)

Five elements to the project

1 Evaluation of existing environment

Objectives 1 and 2 establish the first element of the project.

2 Development potential

Objective 3 establishes the second element.

3 Linking the learning gained from the project to the wider University community

This will involve developing a link with the University's Media Services, so that learning, experience and expertise can be shared. The outcomes of elements 1 and 2 will be discussed with Media Services in exchange for expertise in generic learning space design in order to identify possible design solutions for University-wide future learning spaces. Media Services have already expressed interest in the CETL learning space and in working with the CETL in this element. This may lead to future joint project work on a broader base than simply the CETL learning space or Engineering.

¹ The term environment is used to include both the seminar spaces and the equipment in the spaces. It will incorporate the design studio, resource room, the social space, the interactive whiteboards, and other technological equipment. It will not include the office and administration spaces.

4 Beyond the University of Loughborough

In its early phases, this element of the project will concentrate on Engineering. Initial interest has been expressed by CEME². A Manufacturing Engineering facility is in operation in Dagenham to offer CPD to industry. Presently, the facility is underused, and they are keen to identify how its potential can be realised more effectively. Lessons learned from the other elements of this project will be used to support and shape possible developments of the Dagenham facility. It is anticipated that outcomes of the project will also be disseminated across the Engineering community in UKHE, and beyond.

In the opposite sense, the project will also be outward looking in that it will make comparisons with learning spaces designed for and by other CETLs in the sector. A possible aspect of this work would be to identify the range of needs analyses that were undertaken by other CETLs to inform their estate and resource design.

5 Pedagogy

This element is threaded through the project, as it will approach the work from a pedagogical, rather than resource perspective. The key purpose is to identify how learning environments can support and influence teaching and learning practice.

The process

The initial focus will be between January 2007 and July 2007. The diagram below shows the relative resource given to each of the first four elements of the project.

January	Analysis of staff needs survey			
Feb	Use of space (1)		Dev. Potential (2)	
March			Uni.(3)	
April	Interim report			
May	Use of space	Dev. Potential	Uni.	Ext. (4)
June				
July	Full report and future plans			
Beyond				

January

Work will focus on an analysis of the staff needs survey and how it led to the design of the spaces and specification of the resources. This may continue into February and beyond as necessary.

February

A user evaluation will identify how and why the space is being used and what components are proving to be most useful. Work will begin on identifying how the resource might be developed and how it might be used more effectively.

March

By March, the Media Services will become involved in sharing outcomes and expertise for the benefit of the whole university. Contact will be made with the Dagenham facility and the nature of joint development work will be scoped.

² CEME Centre for Engineering and Manufacturing Excellence

April – July

Evaluation will continue in all 4 elements of the project. An initial evaluation report will be provided in April, which will concentrate on the first two elements of the evaluation.

Beyond July

Future work will be, to some extent, dependent on the outcomes of the first six months of the project, but the intention is that it will lead to some or all of the following (and perhaps more):

4. Introduction of student interns and student projects
5. Development of resource guides
6. Establishment of staff development in both the use of resources and possible innovative approaches to teaching and learning
7. Modifications to or enhancements of the environment (e.g. a pilot to consider the implications of allowing students to bring refreshments into some areas of the CETL; a pilot to introduce Enquiry Based Learning into the engineering curriculum)
8. Developing a design specification for generic teaching space (SCHOMS)
9. A comparative study across a range of CETLs (this might well begin before July, and would be based on individual CETL evaluations of their estate for HEFCE purposes).

Methods used

1. A review of the process and outcomes of the staff needs analysis
2. Structured interviews with staff who currently use the environment
3. Focus group discussions with student users
4. User questionnaires – goal oriented and goal free evaluation (both quantitative and qualitative outcomes)
5. Direct observations
6. Pilot development schemes
7. Staff Development seminars and workshops for CETL and Faculty staff
8. Student development workshops
9. Meetings, discussions and interviews with Media Services staff and staff at Dagenham
10. Visits to other CETLs and short evaluation questionnaires/structured interviews with other CETL staff

Appendix B: Interview with engCETL Administrative Staff, 16 July 2007

Judith Burton, Nick Rawle, Ivan Moore

The focus of this interview included room usage, the online room booking system employed by engCETL and the “no food/drink” policy.

3 “typical” weeks of usage over the year were examined to show dept, student, engCETL and external usage. 60% of usage is by Wolfson and different patterns of usage cause some problems (e.g. one hour on same day for whole year versus all rooms for one week). There was discussion of online booking problems and suggestions for the new academic year. For the engCETL booking requests for the whole year are made by the end of June and organised by the end of July (compared to August for Semester 1 pool bookings).

Comments from academics, cleaners and engCETL experiences on the “no food/drink” policy were discussed. Academics and cleaners are against allowing food. In practice, it has been found that generally a relaxed ‘leave no evidence’ trust approach is found to be working.

IM made several suggestions:

Department Clashes

- Using a points system to resolve clashes.
- Final decision should be made at Faculty level – Faculty Administrator?

Student Usage

- Produce a graph showing overall usage of slots used by students.
- DS might be used as a drop-in for several groups at a time when breakout rooms are all booked out.

Evening Use

Trial at particularly busy times or start with Mon or Tues evenings.
Policed by PhD students.

Equipment Training

- *Academic/CETL staff* – 2 x workshops before start of acad year on using visualiser, promethean etc. Offer session with coffee/lunch and focus on those timetabled to use the facilities
- *Students* – demo of Promethean, wireless keyboard etc so know what is available

Equipment Additions

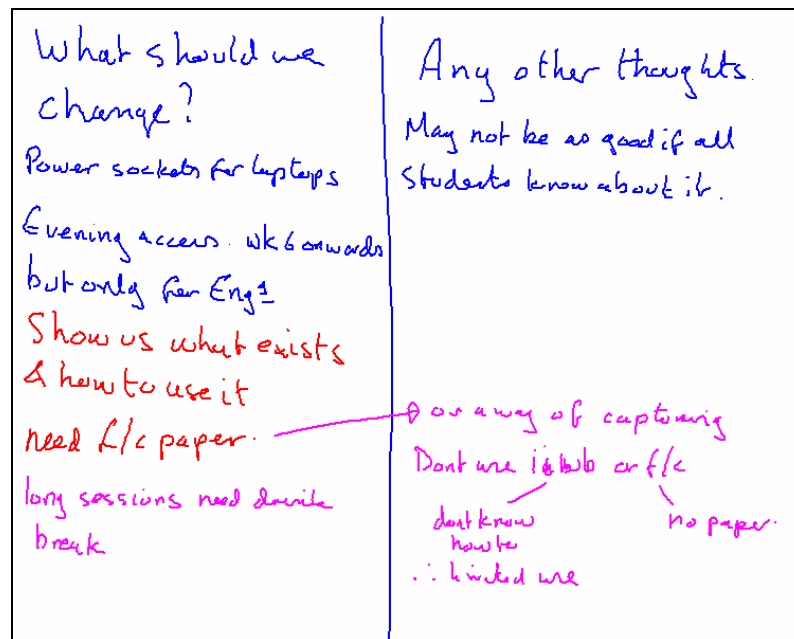
- OHP – ordered
- DS – Small Promethean board next to large screen

Appendix C: Student Focus Group, 29 May 2007

Introduction

A group of 8 students representing 4 different engCETL departments were brought together in a focus group to discuss the use of the space in the engCETL building.

The students used one of the breakout rooms in the engCETL building and their responses were captured on the interactive whiteboard in the room. This was then saved as a PowerPoint presentation. An example of the data captured is shown below:



Questions

The questions posed to the students were as follows, some of these leading from the direction of the discussion:

- What do you use the space for? (thinking about both staff-led and student-led activity)
- How is it used?
- What do you like about the space?
- What don't you like about the space?
- What would you transfer out to other spaces?
- In what ways is it better than the rest?
- Could/should others use it? What for? Why?
- What should we change?
- Any other thoughts

Outcomes

When students used the space for staff-led activity it was according to the lecturer's requirements – often as one large group in the Design Studio in the morning, followed by use of the breakout rooms as smaller groups in

the afternoon. Students also booked the space themselves for review of group design projects and for group revision purposes (e.g. going through past exam papers).

The space was appreciated for being clean, bright and quiet – students felt that they could talk with no background noise. They felt the space to be 'exclusive', liked the wifi and availability of laptops, in one quote "way better than the rest".

Disadvantages of the space included nowhere to get a drink (even if only water) and lack of some required software (e.g. MatLab). They feel that they don't know quite what exists and how to use it. In particular, they would like a demonstration of the interactive whiteboard.

If they could replicate this space elsewhere then the students would take with them the bright white natural light, the flexible furniture and the generous room sizes – feeling that this allowed them to work comfortably for longer periods of time.

Interestingly, the students were protective of the space, not wanting too many others to know about it in case it became too crowded and hard to book. "The space may not be as good if all students know about it". The flexibility of student booking is seen as a huge plus.

If things could change, then the students would like:

- Power sockets for laptops (maybe they are unaware that they can use the floor panels)
- Evening access at certain times of the year (but only for engineers!)
- Demonstrations of what exists and how to use it.
- Flip chart paper, or another way of capturing information (e.g. knowing how to use the interactive whiteboard)
- Ability to get refreshments during long sessions

The students felt that the engCETL space offered options for groups that aren't available in many other places on campus, in a space specifically designed for learning.

Appendix D: Interviews with Estates and Media Services, 12 June 2007

Estates – Tim Walton

This interview focussed on the creation of the engCETL learning space only. Estates initial involvement was at the bidding stage, helping to develop a cost plan. They then became heavily involved at the design and build stages, as overall project managers.

The view of Estates is that the engCETL wanted the 'wow' factor, keeping control of their own budget (which worked well) and believed that they had plenty of space. However there were problems with the initial contractors, with costs spiralling and eventually they were successfully replaced. Fortnightly design meetings were held between the architects, Estates and the engCETL to finalise needs and sort out problems, engCETL staff being known to say "We've been thinking...".

Estates understood their role to be to pull the process together and to meet the aspirations of the engCETL staff. At the first stages this involved establishing if the ideas were good, feasible and practical given the space available. This moved into developing a business plan, the challenge of the build and then the final costs and sign off.

It is felt that value for money was achieved – a lot was got into the building. The major disappointment was felt to be the quality of the environment in the design studio, in particular air and noise issues as the air conditioning was replaced by air handling.

Media Services – Anne Mumford

The involvement of Media Services was at post bid stage. They wanted to support engCETL in 'going beyond' the existing types of teaching accommodation. The usual barriers of using the equipment have been experienced.

Appendix E: East Midlands CETL Workshop, 20 February 2007

An afternoon workshop to discuss the evaluation of learning spaces for the East Midland CETLs was held at (and led by) the engCETL on 20 February 2007. The aim of the workshop was to:

- highlight the ongoing evaluation of our learning space
- establish what other CETLs were doing in this area
- build a common understanding of what evaluation of learning spaces might cover
- see if we could work with other CETLs on our evaluation

The workshop had 12 attendees from 7 East Midlands CETLs and although successful in the first 3 aims, it did not result in any collaborative work as the other CETLs attending were not currently at a stage of evaluating their new learning spaces. The discussions revolved around the questions listed below, with attendees revising their thoughts as the workshop developed. As the workshop was held early on in the engCETL evaluation, the resulting ideas were able to influence the main engCETL evaluation and therefore any related outcomes are included in the main report.

What does evaluation of a CETL learning space mean to you?

There seemed to be a fairly common understanding on what an evaluation of a learning space would mean – why the space was designed in the way it was, does the space do what was intended, how is it used, why is it used, does it help learning and what could be improved? As the workshop progressed, the focus became more on how any evaluation could be used to influence future student learning.

What have you done so far?

Many of the attendees had done nothing formal so far, although some had gained qualitative feedback from users and potential users and were capturing usage data etc. Some CETLs (including engCETL) had created the space based on feedback from staff and students. Others were developing aims and objectives of a future evaluation and/or intending to employ an external consultant to undertake a formal evaluation.

What are your plans?

Immediate plans of the CETLs attending included getting their spaces to work and snags resolved, considering the need for training sessions, auditing the range of activities being carried out and acting on initial feedback gathered, comparison with other university spaces, looking at the ways the students were making use of the space – generally a focus on who was using the space, what for and why.

More long term plans included impact studies, building in learning and teaching events, making sure data gathered informs practice, involving everyone necessary (e.g. estates), evaluating the use of equipment as well as the space itself, trialing possible improvements. Eventually CETLs hoped to be able to share findings with other CETLs, input into the design

of future new spaces and also to understand the impact of their learning spaces on the way people teach.

What do you want to find out?

The sorts of questions that attendees envisaged including in their evaluation of their learning space were:

- Who has used the space for what, how and why?
- Is the space flexible enough to be used for different approaches?
- Is it used as envisaged?
- How does the space affect the user (academic or student)?
- Does the space enable and encourage different modes of learning?
- How does the space impact on learning?
- Does the space affect a student's perception of their subject?
- Do academics and students like it?
- What else could it do?
- What could be improved?
- What support is required?
- Can we share the findings and are they transferable?

How might you answer these questions?

The CETLs present envisaged using common evaluation approaches such as comparison with baseline data, literature research, needs analysis, monitoring usage, observation, questionnaires, interviews, focus groups and sharing information with other CETLs.

Why do you want to undertake an evaluation?

As well as the obvious requirement to satisfy CETL funding requirements by obtaining evaluative evidence about their learning spaces, the attendees hoped that through undertaking evaluation of their learning spaces, they would be able to improve future learning experiences. For example, they would have a shared understanding (hopefully between many CETLs) of why and how the new spaces enhance teaching and learning, how the spaces will be used and supported beyond the funding period and how they can be used to inform the future development of new learning spaces.

Appendix F: HEA CETL Conference Presentation, 20 March 2007

This interactive presentation gave an overview of the engCETL evaluation and the East Midland's CETLs February workshop and then gave the 13 participants an opportunity to consider how they might go about evaluating their own learning spaces, identifying any questions that might be common between the CETLs and learning that might come from the process.

Participants considered the following questions, in a similar way to the February workshop:

- What does evaluation of a CETL learning space mean to you?
- What have you done so far?
- What are your plans (short, medium, long term)?
- What do you want to learn from evaluation?
- How will you find this out?
- What will you do with what you have learned?

Appendix G

The Development Process of the engCETL Learning Space

Dr Sarah Bamforth

