6 Evaluation

THIS SECTION AT A GLANCE

- we look at the need for evaluation of learning space projects including the real purpose behind the evaluation – what it is we are actually trying to measure;

- we look at a range of approaches to learning space evaluation.

Expectations from reading this section

Estates professionals may already be familiar with the concept of post-occupancy evaluation of a physical space but may have less experience in designing evaluations that measure the success of space as effective *learning* space. Similarly, professionals that directly support learning and teaching activities, may measure aspects of user behaviour without relating them in any way to the physical space. It is to be expected that from reading this section those charged with delivering learning spaces will appreciate the need for a cross functional approach to determining what success looks like and will plan early in the life of a project what needs to be evaluated and how this should be done.

In particular we suggest that:

- Evaluation is an integral part of any learning space development and should be considered from the outset of any project.

- We need to be able to evaluate the *learning* taking place as well as more readily quantifiable measures of usage of the space and technology.

- We need to develop measures of success that relate to the activities and behaviours of students and how they communicate and collaborate within the space.

- We need to use a range of qualitative and quantitative evaluation methods.

- We need to ensure the involvement of a wide range of stakeholders including learners.

6.1 Typical post-occupancy evaluation (POE)

Post-occupancy evaluation (POE)[161] is well established within the higher education estates management function and AUDE has collaborated on producing guidance published by HEFCE (2006) on the topic[162].

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161 *POE - post occupancy evaluation - the standard term for the techniques used to assess the outcomes of a construction project.*
162 *HEFCE (2006) Guide to Post Occupancy Evaluation: www.smg.ac.uk/documents/POEBrochureFinal06.pdf*

In that guidance POE is used as an umbrella term that includes a review of the process of delivering the project as well as a review of the technical and functional performance of the building during occupation. POE is a way of providing feedback throughout a building's lifecycle from initial concept through to occupation. The information from feedback can be used for informing future projects, whether it is on the process of delivery or technical performance of the building. It serves several purposes:

Short term benefits of POE

- identification of and finding solutions to problems in buildings;

- response to user needs;

- improve space utilisation based on feedback from use;

- understanding of implications on buildings of change, whether it is budget cuts or working context;

- informed decision making.

Medium term benefits of POE

- built-in capacity for building adaptation to organisational change and growth;

- finding new uses for buildings;

- accountability for building performance by designers.

Longer term benefits of POE

- long term improvements in building performance;

- improvement in design quality;

- strategic review.

6.2   What are we evaluating in a learning space and why?

Typical POE, as outlined above, serves an essential function in relation to construction projects and estates management but this section is written with the premise that in designing a new learning space we are aiming to enhance *learning*. That may seem obvious but a standard POE can go into great detail about various functional and technical issues without addressing the fundamental question of whether the space makes a difference to learning. In this regard we are explicitly using the term learning as distinct from whether the space has had an impact on *teaching* practice as, again, the two are not the same thing. They are of course related and change in practice may be expected to lead to change in outcomes. Pragmatically, it may be the teaching you can observe and evaluate in the short term. Overall, however we should be looking to measure benefits realisation against the broader project goals.

> *"The danger is that we use the old measures to measure new space and thereby find it wanting."* Toolkit contributor

> *"I have had some negative experiences of POE being just a box ticking exercise. People often just want to get it over with to get the project signed off and qualitative and important stuff gets overlooked."* Toolkit contributor

UK higher education institutions do not have a strong tradition of carrying out such evaluations. Aside from data collection on numbers of users and their activities in libraries and learning resource centres:

> "consideration of space in higher education has commonly taken place either in the context of space planning, or as part of campus master-planning and architecture, rather than being seen as a resource to be managed as an integral part of teaching and learning, and research, activities" (Temple 2008)[163].

One of the reasons for this is related to the inherent difficulty of such an undertaking. A 2009 study for Jisc of how learning spaces were being evaluated identified:

> "The evaluation of learning is fraught with difficulty, if nothing else because there are many conceptions of what constitutes learning and how the process occurs. There is widespread agreement that current assessment methods do not fully evaluate learning, but little consensus as to how they might be augmented or replaced to do so. Thus, Learning Space evaluations often owe more to Space evaluation more generally, with processes of learning and teaching often being evaluated only in a modest sense, if at all" (Pearshouse et al 2009)[164].

If we accept that learning space projects are change projects then there needs to be careful consideration of how we can measure the success of such space. Research on the topic such as Watson *et al* (2007)[165] and Pearshouse *et al* (2009)[166] recommends a range of measures including:

- greater use of baselining so that we have pre-and post-evaluations;

- greater involvement of teaching and support staff;

- use of behavioural observation and tools such as social network analysis.

Roberts and Weaver (2006)[167] have suggested that learning space evaluation should help us meet the following needs:

- to gain first hand knowledge of student learning needs;

- to capture how the learning environment features in the student lifecycle in order to link evaluation outcomes more readily to student achievements, progression and learning outcomes;

- to analyse how best to use ICT and record novelty in real life settings;

- to define what adds value and what is valued by the institution and individual/teams;

- to reach a common understanding on the use of language around evaluation;

- to ensure that there is evidence to support the institutional return on investment by providing tangible evidence as justification for continuing investment;

- to feed into future planning – evaluation must be an iterative process and undertaken early on before the project is implemented;

- to connect project outcomes to the context of the university and what it is trying to achieve, ensuring fit between evaluation approaches and required benchmarks;

- to demonstrate the benefits to the institution and the learning community, and maximise them during ongoing change.

163 Temple, P. (2008) Learning Spaces in Higher Education: An Under-Researched Topic. *London Review of Education, vol. 6, no. 3, pp. 229–241.*
164 Pearshouse, I., Bligh, B., Brown, E., Lewthwaite, S., Graber, R., Hartnell-Young, E. and Sharples, M. (2009) *A Study of Effective Evaluation Models and Practices for Technology Supported Physical Learning Spaces. Report produced for Jisc:* http://oro.open.ac.uk/29996/2/
165 Watson, L, Anderson, H. and Strachan, K. (2007) *The Design and Management of Open Plan Technology Rich Learning and Teaching Spaces in Further and Higher Education in the UK. Report produced for Jisc:* www.webarchive.org.uk/wayback/archive/20080925103236/http://www.jisc.ac.uk/whatwedo/themes/elearning/tele/managinglearningspaces.aspx
166 Pearshouse, I., Bligh, B., Brown, E., Lewthwaite, S., Graber, R., Hartnell-Young, E. and Sharples, M. (2009) *A Study of Effective Evaluation Models and Practices for Technology Supported Physical Learning Spaces. Report produced for Jisc:* http://oro.open.ac.uk/29996/2/
167 Roberts, S. and Weaver, M. (2006) *Spaces for learners and learning: evaluating the impact of technology-rich learning spaces, New Review of Academic Librarianship, vol. 12, no. 2, pp. 95-107.*

Technical evaluation of AV systems can sometimes be overlooked. Whilst universities and colleges are getting better at designing to recognised standards, we rarely evaluate the delivered solution against these. We also fail to repeat this evaluation on a regular basis over the life of the system, meaning our life cycles are based more on manufacturer guidance and compatibility than delivered functionality. Audio coverage, induction loop field strength, reflected light from projectors and screens all deserve greater attention. These technologies can be measured with remote management systems. Better use of automated reporting will help institutions to design for the next system (as well as developing the overall technology application) and in the longer term relevant data could be fed back to manufacturers.

6.3 What does success look like?

The Learning and Skills Council which (until its abolition in 2010) had responsibility for a college building programme in further education, suggested the following criteria[168] should be reflected in all new projects:

- **Innovation and Excellence** – is it an innovative and high quality new style of learning environment for the 21st century?

- **Adaptability** – can the design accommodate changing learning styles through flexible provision?

- **Manageability** – will it be easy to manage and make effective and efficient use of staff?

- **Accessibility** – is it an inclusive and accessible place for learning that supports engagement while providing a safe and secure environment, accessibility to learning systems, technology and resources?

- **Atmosphere** – does the design create a feel good factor for learners and staff?

- **Sustainability** – how effectively does the design consider climate change, sustainable materials, energy efficiency, transport, physical quality of the learning environment re: daylight, air, and acoustics?

> "The challenge from an evaluation perspective is to get the evidence that certain learning spaces achieve better results. This is very difficult to achieve as there are so many different variables."
> Caroline Pepper

6.4 Establishing a baseline

A baseline is a start point against which you can show that your project has delivered a tangible improvement. This may imply a measurable improvement in time, cost or quality but qualitative evidence that the experience of certain stakeholders has improved can be equally valid. By developing a baseline you ensure that you understand the current state of play before you try to change it.

The baseline is a component of your evaluation plan and is, to some extent, a precursor to it as it can play an important role in helping define the scope of your project. A rough outline of relevant project activities might look something like this:

1. outline your project definition;

2. define the baseline;

3. refine your project definition in the light of the outcomes of baselining;

4. identify where you hope to make improvements;

5. identify how you will measure improvement and what sources of evidence you will collect;

6. design your evaluation plan;

7. conduct the project and post-project evaluation;

8. compare end result with the baseline.

168 Learning and Skills Council (2002) Guidance on College Property Strategies: http://dera.ioe.ac.uk/13355/2/Supplement_A_to_Circular_02-20_Guidance_on_college_property_strategies.pdf

Step seven is by far the largest element of the project and will consume most of the time and resources but baselining and evaluation are the activities that show the project was worth doing at all. They assume increasing importance in the current climate: baselining can help you ensure you tackle the right issues, in the right way, involving the right stakeholders and evaluation can ensure you deliver the expected benefits and capture the essential learning for your next project.

The benefits of capturing a baseline include:

- **Getting project scope right** – baselining gives you an opportunity to refine the scope of your project. Sometimes you will realise you cannot solve a particular problem without tackling one or more related issues.

- **Identifying project stakeholders** – baselining can help avoid you finding a *skeleton in the closet* further down the line in the form of a stakeholder you should have consulted but missed.

- **Managing and communicating project scope** – baselining helps you manage stakeholder expectations of your project. You may need to make it clear that certain issues are out of scope if you are not to disappoint certain stakeholders.

- **Challenging myths** – sometimes baselining activity can reveal myths and fallacies that need to be challenged before you can move forward. Often they relate to unspoken assumptions about what aspects of practice, processes and systems can and cannot be changed: remember, *"We've always done it that way"* is neither a reason nor a justification.

- **Showing evidence of improvement** – you cannot show how far you have travelled unless you know where you started.

It may be relatively easy to establish and compare against a baseline where you are refurbishing an existing space with facilities of a similar type and scale. The situation becomes more difficult when you are implementing a space that is new and/or radically different but, in these cases, it is probably even more worthwhile. If you are undertaking this type of significant investment you need to be sure that it is really having an impact on things that matter.

6.5 Gathering and sharing information

Many factors impact on the choice of evaluation methods and time and budgetary constraints are prominent amongst them. Quantitative information is relatively easy to gather these days and data collection may be automatically available from systems such as those managing swipe card access or registering users of the network. The choice of relatively traditional evaluation techniques and particularly automatically generated occupancy data is a pragmatic one for many evaluators resulting in *quick wins*.

Such data will however need to be supplemented by observational and behavioural analysis to gain any real insights into student and tutor practices in new learning spaces. Ethnographic approaches[169] have been used in some areas: Edge Hill University chose to take an ethnographic approach to evaluating their SOLSTICE space[170]; the approach included observation of sessions, student focus group interview (followed by further paper-based questions) and tutor reflections. Other universities have used photo snapshots taken at regular intervals to record the configuration of furniture and the uses to which the space is being put.

Other methods of gaining user participation in evaluation include:

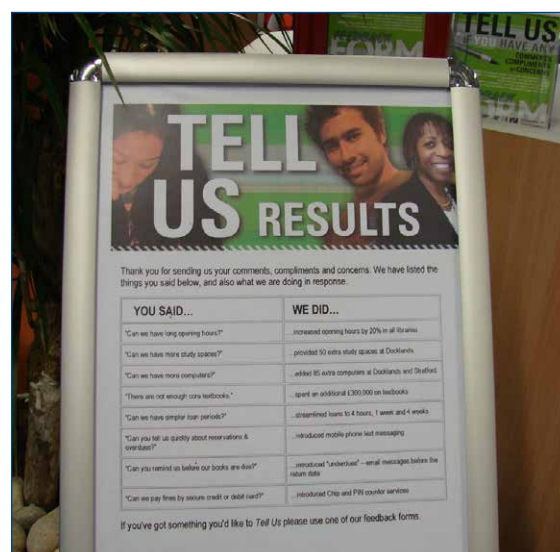- video diaries;

- user blogs;

- graffiti walls.

Photo 15: Responding to feedback at the University of East London.

169 *Ethnographic approaches involve research that tries to understand behaviours from an insider perspective rather than imposing external models. Such approaches usually rely on multiple sources of evidence.*
170 http://tools.jiscinfonet.ac.uk/downloads/lsd/solstice-presentation.pdf

Universities planning behavioural and observational approaches should bear in mind that such evaluations may be covered by their research ethics policy and require prior approval by the research ethics committee.

Once you have undertaken an evaluation it is good practice to share information about how you acted on the feedback with users of the space. This can be as simple as putting up a poster as in the example above from the University of East London.

VIEWPOINT

Jean Mutton, formerly Student Experience Project Manager at the University of Derby and now a service design consultant, realises there is often a discrepancy between what students want and need and what managers think they want. Service design approaches[171] can be very helpful in taking a systematic approach to meeting user needs. Jean is very cautious about surveys because you only get answers to the questions you ask. She suggests that you should try to be to be very open ended when designing evaluation questions, so that people say what they really think. The timing of surveys can also be an important factor in the answers you get e.g. students who are very happy with the library facilities and opening hours at the start of term may have a different view following an intensive assessment period. It is also important to be sure we are measuring the right things e.g. service help desks are often pleased with how quickly they answer the phone and the number of queries they respond to, rather than looking at *failure demand* i.e. why they are receiving the queries in the first place?

At Derby one of the surprising uses of some relatively high tech collaborative group spaces, the learning pods, was that early in the morning there appeared to be *breakfast clubs* popping up where groups of students would meet with bacon sandwiches. This appeared to be as much of a social gathering as learning, which caused the university to think about why they were doing that, and whether there were issues with other aspects of space provision on campus.

VIEWPOINT

Caroline Pepper, Learning and Teaching Space Manager, Loughborough University, questions the emphasis that the sector as a whole puts on space utilisation figures when evaluating effective use of space. She feels that it is difficult to trust the way the figures are reported as the methodology varies between institutions. Some universities only report on lecture rooms that have a capacity of 100 or more which are generally heavily used. She also suggests that simply increasing utilisation is not the complete answer to better use of space. There is a balance to be achieved. Increasing utilisation can have a negative impact on student experience and this is illustrated on a continuum.

High utilisation   *Low utilisation*

Estate-driven timetable   *Student-driven timetable*
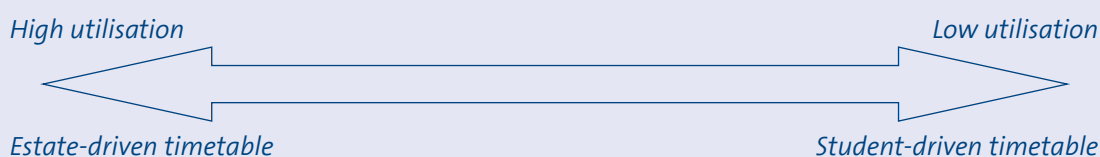
Loughborough utilisation figures are always steady at around 33-35% which is in the top 15% for the sector, but Caroline believes its utilisation figures for pool spaces should not be increased further (to avoid losing flexibility to timetable according to teaching type and pedagogical style rather than simply how many people you can fit in the room). She is more focussed on analysing all learning and teaching spaces and their effective use, this includes school controlled spaces and informal learning areas, which cannot be measured easily by utilisation statistics.

Caroline emphasises the need to evaluate things that actually impact on learning and is looking at adding specific questions on learning spaces to module feedback forms. One simple change that Loughborough made in response to student feedback was in the fact that rooms used to be timetabled for teaching and then locked during holiday periods. Student survey data showed that students were lacking places to study so students can now view an online timetable and access teaching rooms when they are not in use. This is something that was easy to achieve.

171 Baranova P., Morrison S., Mutton, J. (2010) Service Design in Higher and Further Education: A Briefing Paper. Jisc: http://wiki.cetis.ac.uk/images/8/82/Service_Design.pdf

VIEWPOINT

Sally Jorjani, Head of Academic and Business Liaison, Edinburgh Napier University, used observational evaluation techniques to help in the planning for some new types of social space in and around the reception areas on Edinburgh Napier's three campuses. Time lapse filming took place over a period of a week on each of the campuses and this was supplemented by some physical observation. The observations revealed that students were doing different things on each of the campuses and that this was related to different teaching and learning practices in the different discipline areas on each campus as well as the fact that each attracted a different student demographic. The university already had information about student ownership of devices from an earlier survey but the observations gave them insights that they hadn't picked up from the survey. The survey revealed that many students have up to three devices but the observations gave a much richer picture of what devices they used for what activities and in which locations on each campus. This evaluation evidence was helpful in demonstrating the need for the project.

VIEWPOINT

Toni Kelly, Associate Director, Learning Environments, University of Hong Kong, stresses the importance of keeping a lessons learned log. She told us "*You not only need permission to create new spaces but you need permission to go back and put things right*". Often this is simply down to students finding new and unexpected ways to use the space, the furniture or the technology. Toni said "*No matter how careful we have been about creating spaces to meet students' needs and expectations, they always manage to use them in ways we had not thought about!*".

Resources

- Mind map showing evaluation activities undertaken for the University of Warwick Learning Grid[172].

- A 2007 Jisc study of effective evaluation models and practices for technology supported physical learning spaces containing a framework for evaluating learning spaces[173].

- The Educause Learning Spaces Rating System provides a set of measurable criteria to assess how well the design of classrooms support and enable active learning activities[174].

- A 2011 literature review on the evaluation of learning spaces[175].

- The Swinburne University of Technology Toolbox database provides a comprehensive set of examples of learning space evaluations undertaken using a variety of different methods[176].

- McGill University video on post-occupancy evaluation of their active learning classrooms[177].

- Canterbury Christ Church University implemented a laptop borrowing scheme and used the data from that to understand more about how students were using the laptops within networked learning spaces. The evaluation won them the 2009 UCISA Award for Excellence[178].

172 http://tools.jiscinfonet.ac.uk/downloads/lsd/learning-grid-evaluation.pdf
173 Pearshouse et al (2009) A Study of Effective Evaluation Models and Practices for Technology Supported Physical Learning Spaces. Report produced for Jisc: http://oro.open.ac.uk/29996/2/
174 www.educause.edu/eli/initiatives/learning-space-rating-system
175 Lee, N., Tan, S. and Tout, D. (2011) Evaluation Learning Spaces Literature Review. Swinburne University of Technology: www.swinburne.edu.au/spl/learningspacesproject/outcomes/files/ELS%20Lit%20Review.pdf
176 www.swinburne.edu.au/spl/learningspacesproject/database/index.html
177 www.mcgill.ca/tls/spaces/alc
178 www.ucisa.ac.uk/~/media/Files/members/awards/excellence/2009/CCCU%20pdf.ashx