BRINGING POST-OCCUPANCY EVALUATION TO SCHOOLS IN SCOTLAND

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Abstract. The Scottish Executive is currently engaged in the country's largest school rebuilding programme in modern times. As part of this commitment, guidance was published in June 2004 to assist local authorities in undertaking school building evaluations that will collect feedback from users and share outcomes with stakeholders. The particular method of post-occupancy evaluation demonstrated in the guidance has been used extensively for schools and other public buildings in New Zealand since the late 1970s. It is an approach which is considered well-suited to supporting the school estate strategy and wider educational policy objectives in Scotland. This paper describes the method in detail, including examples from an evaluation at an Edinburgh primary school to illustrate key issues.

Applications

The Scottish Executive, responsible in partnership with local authorities for funding Scotland's school facilities, is engaging with stakeholders to achieve excellence in the school estate through Post Occupancy Evaluation (POE). Design of the school environment has a direct impact on teaching and learning, activities which can be supported or frustrated by many building elements. Through a collaborative process, evaluating new and existing facilities can benefit all those involved in educational building, from the school users, to the local authority, to designers.

A demonstration evaluation of Craigour Park Primary School, set out by the Scottish Executive, showcases an approach that can enable local education authorities to learn from completed school projects to inform future school designs.

While few people advocate ignoring the opinions of building stakeholders, systematic consultation is rarely practiced. This is unfortunate because stakeholders say, in POE reviews, that they want to be asked and they frequently identify design improvements and operational adjustments for their benefit. Installing a Post Occupancy Evaluation programme in Scotland's system for producing schools is a win-win-win solution for schools, local authorities and architects.

A central tenet of operations management is to review a process before repeating it. UK Treasury guidance on economic appraisal, accepted as best practice by the Scottish Executive, emphasises the need for evaluation of all major government expenditure programmes including the school estate. (http://greenbook.treasury.gov.uk/chapter02.htm)

History

"... (BPRU) at the University of Strathclyde appraising over fifty comprehensive schools in Scotland in the late 1960s (BPRU, 1972) provides one of the seminal examples of the post-occupancy evaluation of school buildings. ...." (J Lackney 2001). With this background, Scotsmen David Kernohan and George Baird contributed to work by a Victoria University of Wellington School of Architecture team for the New Zealand Government Architect. The Government Architect was applying the walkthrough technique used by Bob Shibley for the US Army Corp of Engineers with advice from Peter Ellis of Building Use Studies, London. The Government Architect developed and tested a POE process on approximately 20 buildings from 1978 to 1983. From 1984-1992 Chris Watson developed and refined the process for commercial application and by 2003 had completed more than 100 POEs.

After completing some 130 evaluations from New Zealand some recurring lessons have emerged. A review of 27 large buildings in New Zealand and Australia included university buildings, courts, museums and police stations noted patterns. Air quality and thermal comfort are consistently the worst problems when mechanical ventilation and/or air conditioning are installed in buildings.

Purpose and benefits of POE for school buildings

No school building perfectly facilitates stakeholder needs. In reality, most buildings are the result of engagement between less than perfect clients, architects and builders to construct for a diverse range of occupants who end up using the buildings in ways that were only partially predicted. By undertaking building evaluations, local authorities recognise that a school building is not perfect, but that every effort should be made to continually improve the educational environment within the resources available.

Specific purposes of building evaluations include:

∞ *Fine tuning new buildings*. A building evaluation provides an insight into how the building and services support and frustrate the activities of the users. In many cases, making minor adjustments such as altering taps or providing additional signage or shelving can be experienced as significant improvements for users. Evaluations also reveal problems that can be overcome by making changes in management practices and procedures, such as directing queuing in a different way, or using alternative spaces for a particular activity or at a different time.

∞ *Improving design for future buildings*. The most important outcomes of conducting building evaluations as early as possible in a school building programme is to identify aspects of new schools that have been successful. These aspects should be celebrated, included and developed in future projects. Equally important is that less successful aspects be identified, so they can be avoided in future projects.

∞ *Demonstrating best value*. Building evaluations can identify ways in which buildings and equipment can be used more efficiently and more cost-effectively. They are also a valuable tool for assessing building quality, particularly in terms of suitability or 'fitness-for-purpose'. This is an important element of estate management planning, and can assist local authorities to demonstrate that investment in building programmes are being managed responsibly to achieve an efficient and effective educational environment.

∞ *Building stakeholder commitment*. Evaluations support a learning culture by involving users in discovering how well buildings work for them. This participation can engender a greater commitment from users to particular solutions, and more willingness to accept a project's limitations or to face the changes associated with occupying new environments. Participation also assists in strengthening a sense of ownership amongst school users and contributes to capacity building within the wider school community.

∞ *Evaluating existing buildings*. Building evaluation methodologies can also be applied to existing schools, as an important tool in planning refurbishment projects. They can assist in option appraisal and inform investment decisions about achieving the optimum balance between levels of refurbishment, remodelling or new build.

Advantages of a collaborative process

Post-occupancy evaluation enables local education authorities, schools and designers to work in partnership to achieve the best schools possible.

Buildings derive their value from their utility, and the utility is itself dependent on the occupants so the method provides a structure to "negotiate" both building and use simultaneously.

The focus on building use provides a "common denominator" to evaluation that is inclusive of all interested parties. Consequently, it is egalitarian, in that it creates a forum for all participants to equally express opinions about how buildings are functioning for use. The process is accessible to all people, to present their views in their own ways. Thus it reflects individuals and celebrates diversity of opinion about building needs.

The Scottish Executive encourages Post Occupancy Evaluation in order to promote a culture of collaboration for improving the fit between design and use. The approach is quick and easy for participants to complete.

Another advantage of the process is that it is specific to the Scottish schools and informative for architects to translate requirements into design improvements. It is based on "negotiating" improvements with school users so does not depend on interpreting statistical data.

Freeing all participant groups to discuss any aspect of building use in their own terms preserves objectivity. No single interest group can prescribe the issues as these are generated from the "spatial agenda" of a touring walkthrough interview.

Authorities are encouraged to focus on evaluating buildings in terms of fitness-for-purpose and be inclusive in identifying successful criteria, rather than limiting this to the domain of project professionals.

A comprehensive Post Occupancy Evaluation will incorporate opinions from all stakeholders. A typical school building evaluation engages:

∞   Teachers.

∞   Students.

∞   Non-teaching staff.

∞   Parents.

∞   The local education authority.

∞   Design and building team.

∞   Sustainable building expert(s) (representing future generations).

∞   Facility and maintenance staff, and service suppliers.

∞   Private investors.

∞   Future generations (represented by a specialised sustainability architect).

∞   Independent experts, for example, school building experts, educationalists and disabled access specialists.

∞   Peers (other local authorities).

Most aspects of most buildings work well for users but they can focus on bloopers if project teams ignore them. POE offers a channel to communicate with them that buildings can't be perfect but that they achieve a high level of utility for all present and future users.

Method

Post Occupancy Evaluation specialists use interview techniques to ensure participants are free to express opinions in their own ways without interference or influence from the evaluators. The touring walkthrough interview provides a spatial agenda for participants to respond to. Interviews are documented with notes, photographs and (as required) voice tape recordings.

Once the evaluators complete the site work they document/record findings and generate

recommendations. The report serves to:

- ∞ Demonstrate how buildings support and frustrate people

- ∞ Illustrate diverse design requirements

- ∞ Present relevant recommendations

- ∞ Stimulate action for fine-tuning

- ∞ Transparently communicate design requirements

The report makes building performance explicit with verbatim or paraphrased accounts of the relationships between buildings and people. It documents the performance of buildings and the resulting delight, disgust, passion, pleasure, fear and happiness. It does this by allowing readers to "see" the building through the eyes of the people who are directly affected by it.

The layout of information was designed in 1993 as a type of draft, site-specific pattern (Alexander, 1977). Information was presented to communicate experience of facilities directly rather than to be reducible and it doesn't easily lend itself to mathematical summary.

The process has several additional options including surveys, observation studies and expert scans which can be carried out simultaneously with walkthrough interviews. Lastly a forum can be undertaken to bring together key issues and make final recommendations to decision makers.

Education authority professionals can learn from directly observing Post Occupancy Evaluation interviews. However, they must strictly comply with the one requirement to avoid any temptation to comment on participants' opinions and understandings.

Most Post Occupancy Evaluations reveal several quick, cheap and easy ways to improve learning and teaching with minor fine-tuning of buildings and equipment. Having a small budget set aside can provide for promptly completing low-cost adjustments after the evaluation.

Participants must feel free to express their opinions and must be informed that their ideas may be used in the design briefing. Demonstrating to participants that their opinions are valued is important in generating a sense of partnership and commitment to managing building design and use issues.

Craigour Park Primary School

In December 2003, 35 students, teachers, staff, parents and educational and building specialists were involved in a demonstration Post Occupancy Evaluation of the new Craigour Park Primary School in Edinburgh. The school had a roll of 310 students (with a capacity of 420) plus 100 children in nursery school. As a demonstration evaluation, the number of participant groups interviewed was smaller than usual.

The touring walkthrough interviews commenced at the front of the school where participants addressed issues around the relationship of the school to surrounding areas. They made recommendations relating to driveway safety, fencing, the surveillance system and a garden only partially completed.

The nursery facilities – two nursery rooms, a playground, cloakroom, kitchens, bathrooms and storage – were evaluated. Participants noted ergonomic details that they thought could be improved and some that they have already changed. They would prefer more vinyl flooring, a secure playground gate within line-of-sight to entrance doors and more soft surface play area.

The gym-assembly hall for the main school was well regarded, and the dining hall was appreciated, especially for its adjacency to the main corridor making it not unlike a terrace café. The students were

dissatisfied, however, with the time allotted to queue and eat their lunch.

The 14 classrooms at Craigour Park Primary School are arranged in two similar wings, each with a large central activity area giving access to the classrooms that have some movable walls. Participants reported that the ability to open classrooms to the activity space and/or to the adjacent classroom works well. One teacher said that he merges classes every afternoon and commented favourably on the result. Students were also positive about the flexible facilities; one associated flexibility with learning from other students: "It is really good. We make new friends. You can learn and they help you and that is how you make new friends." There were also recommendations to lower the white boards in the classrooms to within the reach of children and to incorporate surfaces suitable for data projection. Minor changes were suggested for cloak and toilet areas.

In the playground, participants drew attention to supervision, litter, safety and planning.

In overall terms participants were enthusiastic about the new Craigour Park Primary School. The ample provision of dedicated facilities was cited as being particularly beneficial in improving potential for learning.

Evaluations are routinely reviewed a few weeks after completion. In the review of this evaluation the Scottish Executive reported:

∞   The report has a clear layout, focuses on recommendations for improvement and accurately reflects opinions.

∞   The process gives education authorities the opportunity to observe interviews and collaborate on recommendations.

∞   The process is clear and simple, particularly for participants.

∞   The single person contact with the evaluation consultant and empathy with users is valuable.

Evaluation and the School Estate in Scotland

The need to undertake POE on school buildings is an essential part of the School Estate Strategy in Scotland, as the policy framework requires future schools to be both inclusive and sustainable. Mainstream schools must now accommodate a wider range of students with additional needs, and also take on a greater community role meeting the needs of neighbourhood groups, parents, sports clubs and so on. To accommodate such a wide and often diverse set of users and their changing needs, consultation is essential throughout a building project. A POE can be seen as both completing the pattern of consultation on one project, as well as the start of consultation for the next. In terms of sustainability, schools must continue to be relevant and efficiently meet users needs over the longer term. POE checks on a regular basis throughout a school building's life will ensure this.

The process of a POE itself is as equally valuable in an educational sense as the physical improvements it can achieve to the educational environment. Recent national consultation on the future of education in Scotland has led to a new policy agenda for schools and the curriculum which identifies a clear aspiration that all our children and young people should leave school as successful learners, confident individuals, responsible citizens and effective contributors. The need to feel included, to identify, develop and express one's own views about what is important, as well as being aware of the needs of others, and to see fairness and transparency in a democratic process are all essential experiences in developing these capacities. Being involved in a participatory POE process fits very well in supporting these qualities and experiences for pupils and helps to build a positive school ethos generally.

The participatory process also offers a number of practical benefits for a working school where it is often difficult to find time for a POE exercise. This method provides a deceptively simple and efficient approach. By avoiding a pre-set agenda, the time available is spent discussing and recording only those

issues most relevant to the participants and no time is wasted on anything else. The walk-through process makes the exercise more engaging, the building itself prompts users' reactions and allows participants to clearly describe and demonstrate the issue they wish to raise. in whatever detail is necessary.

The simplicity and accessibility of the process is carried through to the format of the report. For participants, their comments are not interpreted, but simply recorded under each relevant recommendation, along with those from other participant groups. This leads to a transparency, and a sense of objectivity and fairness in assimilating what is essentially a set of subjective opinions. Also, the recommendations are presented and illustrated in a way which allows them to be shared and understood by a wider audience than the participants themselves.

Next steps

The demonstration evaluation at Craigour Park Primary school, formed part of the Scottish Executive's publication 'Evaluation' launched in June 2003 as part of the School Estate Strategy, Building Our Future: Scotland's School Estate (and available at www.scotland.gov.uk/schoolestate). It offers guidance on evaluating and learning from completed school projects and, in particular, is intended to assist local authorities in assessing how well a completed school building project meets the needs of pupils, staff, parents and the wider community. The guidance has contributed to a growing emphasis by local authorities on the importance of evaluation as both a quality and continuous improvement tool, and as a feature of their School Estate Management Plans.

One year on, the Executive is taking further steps to support authorities' evaluation work. It will shortly be commissioning Chris Watson to undertake a more comprehensive case study to complement the initial demonstration POE. This study will evaluate a medium-sized secondary school in Falkirk, Scotland. The field work will extend to four full days and involve a wider range of participant groups, including community users and the design, construction and facilities management parties, as well as a group of 'experts' looking at sustainability principles. It is anticipated that the outcomes of the study will cover issues of process as well as aspects of the building design.

The evaluation will be immediately followed by a workshop for local authorities, which will continue to raise awareness of Evaluation, highlighting recent POE activity and discussing any obstacles and constraints to carrying out school building evaluations. It will also consider possible future approaches and how the outcomes of evaluations can be shared more widely for the overall benefit to the school estate in Scotland.

References

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