REFURBISHMENT OF HIGHER EDUCATION PREMISES: STAKEHOLDER ENGAGEMENT IN THE PROCESS AND PRODUCT

Noel J. Painting[1], Poorang A. E. Piroozfar[2] and Eric R. P. Farr[3]

[1,2]*School of Environment and Technology, University of Brighton, Cockcroft Building, Brighton, East Sussex, BN2 4GJ,UK*
[3] *New School of Architecture and Design, 1249 F Street, San Diego, CA 92101, USA*

In spite of various initiatives, much of the UK university building stock is ageing and in need of modernisation both in terms of environmental performance and to respond to the changing landscape of pedagogy and andragogy. Higher educational establishments like to portray themselves as pioneers of a green campaign however decision processes may not always be as easy and straightforward as they seem. Contributing factors will include the complexity of the client brief, the difficulties of timetabling, the desire to operate democratic processes in decision-making and the inevitable compromises resulting from these often conflicting demands. Most universities will have restrictions on the budget, time and working schedules compounded by the need to carry out the construction work on sites where the normal academic activities are to continue. Many university clients will involve the end users in the process of decision-making causing an information overflow whilst some others choose not to get their employees (as the end users) involved at all. This research uses a surgery approach to an ongoing major refurbishment project to map the perceived success of the processes and construction product. The results are aimed to enable similar future projects to run with a greater perceived success, which will in turn benefit all the stakeholders.

Keywords: university sector, refurbishment, stakeholder engagement, process engagement, sustainable refurbishment.

INTRODUCTION

Much of the he UK educational building stock is ageing and in need of modernisation both in terms of environmental performance and to respond to the changing landscape of pedagogy and andragogy.

Sustainable renovation is often seen as a more viable, practical and potentially affordable solution compared to complete demolition and reconstruction. Sustainable refurbishment is particularly favoured because: (1) It can provide a working environment which is fit for purpose and can positively contribute to comfort and productivity of users and staff to the same extent as a new building, (2) It can offer flexibility, agility and responsiveness to rapid and constant change in needs, requirements and preferences, and (3) It improves building performance and reduces its environmental impacts. Moreover, higher educational establishments like to portray themselves as pioneers of the green campaign. The decision processes may not

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[1] n.j.painting@brighton.ac.uk

however be easy or straightforward. Contributing factors include complexity of client brief, difficulties of timetabling, desire to operate democratic processes in decision making and inevitable compromises resulting from these often conflicting interest and demands.

On the other hand renovation projects are more complicated than new buildings and are more prone to go over schedule or budget (or both). The complexities of refurbishment projects are compounded if the intervention is to take place whilst the building is in use. Refurbishing buildings whilst occupied are more likely to require the university to embrace user participation and user satisfaction both during the process of intervention and after the construction work is concluded. Renovation may involve different levels of intervention in existing structure, services, spatial layout, internal partitioning and external envelope of a building, hence a variation of terminologies e.g. redecoration, remodelling, refit, refurbishment, reconstruction, restoration, rehabilitation, adaptation, etc. The research takes a case study approach to an ongoing major refurbishment project to map the decision processes and measures the appropriateness of the information provided to make those decisions. It aims to investigate if utilised strategies have been workable (or otherwise) and suggests what could have been done differently to improve the entire process. The results are intended to enable similar future projects to run with more predictable outcomes and better stakeholder engagement which can benefit all parties.

BACKGROUND AND LITERATURE REVIEW

Models, tools and methodologies for sustainable refurbishment decision

A multitude of research has been conducted with an aim to eventually develop a model, a methodology or a tool to help with decisions about refurbishment. Although not all of those have had a focus on energy performance or environmental impacts of building (Brandt and Rasmussen 2002, Kaklauskas 2005), most recent ones tend, almost unanimously, to have an environment-centric approach to the extent that the concept of 'energy retrofit' or 'sustainable refurbishment' has emerged. Although some researchers may have identified the 'phenomenon of the illusion of ecological benefits' provided by some assessment tools (Kirkpatrick 2009), there are deeper concerns about non-environmental aspects of sustainability and how they are overlooked. This paper seeks to address some of these concerns.

User engagement

Constructing effective teams, unclear boundaries between responsibilities and roles, misaligned interests, contradictory incentives, fragmentation in supply chain and disintegrated delivery hierarchy are inherent challenges the construction industry is facing (Howard 1989, Egan 1998, Kashyap *et al*. 2003, Riley *et al*. 2004). Integration is therefore believed to be an essential factor in project success. WBDG (2012) suggests: '…integrated design process includes the active and continuing participation of users and community members, code officials, building technologists, contractors, cost consultants, civil engineers, mechanical and electrical engineers, structural engineers, specifications specialists, and consultants from many specialised fields' (figure 1).
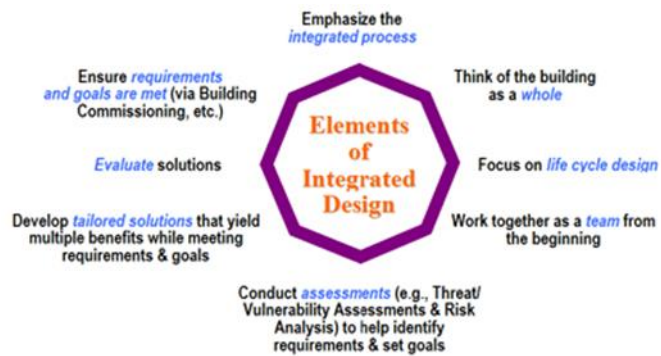
Figure 1: Integrated Design Elements (WBDG 2012)

The concept of integrated design finds a more comprehensive association when it infers 'delivery'; addressing different stages of construction from conception to completion and in building's post occupancy phases through to deconstruction hence the concept of integrated project delivery (IPD). AIA (2007) defines IPD as *"a project delivery approach that integrates people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste and maximise efficiency through all phases of design, fabrication and construction"*. User engagement with other parties has been pointed out as a major contributor in success models formulated in many disciplines (DeLone and McLean 1992, Pitt *et al.* 1995, Seddon 1997, Myers *et al.* 1997) as well as in construction industry (Lapinski *et al.* 2006).

RESEARCH DESIGN AND METHODOLOGY

This research utilises single-case study with multiple-unit analysis methodology to investigate a recent sustainable refurbishment project. A case study is an intensive investigation of a phenomenon in its natural setting, and often makes use of a variety of data sources (Benbasat *et al.* 1987). It is based on a constructivist paradigm (Stake 1995). The knowledge claims of case study research have always been criticised on the grounds of lack of generalisability. The short answer to this criticism is that *"case studies, like experiments, are generalisable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a 'sample', and the investigator's goal is to expand and generalise theories (analytic generalization) and not to enumerate frequencies (statistical generalization)"* (Yin 1989:21). Yin (2009:38) strengthens the methodological legitimacy of case studies by arguing that a *"fatal flaw in doing case studies is to conceive of statistical generalization as the method of generalising the results of the case study"* because cases are not sampling units and should be treated as experiments (Tsang 2013). Although primarily considered qualitative, case study research utilises both qualitative and quantitative research methods (Bryar 1999). The primary strength of case study research is its reliance on data enquiry from different sources and multiple data collection techniques. This increases the validity of findings (Ridenour and Newman, 2008) hence the approach of this research; where a multitude of other methods, including a questionnaire survey and a focus group of stakeholders' representatives have been employed to enrich and deepen the findings, increase its construct validity, internal validity, external validity and reliability (Beverland and Lindgreen 2010).

Different units of analysis which were designed for this study include: review of the project documents, a questionnaire survey (using Likert scale in two different stages: pre- and post-move), a focus group with the representative of stakeholders (pre-move) and an interview with the members of the university, faculty and schools senior management teams (post-move). As the project is ongoing, this research is considered as in-progress, therefore this paper only reports on partial findings of the research. The following section will elaborate more on the data collection and analysis carried out to date, with no further account of what has been planned for the entire length of this research project.

DATA COLLECTION

Data collection was carried out through different phases within the selected case for this study with an aim to enrich the dataset, and to facilitate the analytic generalisation through the findings of this study. An in-depth review of the project documents (including policy and strategy documents, client brief, design brief, design intent, drawing documents as well as sustainability statement) was carried out to provide a basis for mapping user engagements.

The second stage was to circulate a questionnaire to gauge the users' opinions on six areas including communication, engagement, satisfaction, influence, disruption and finally, management of change. The questionnaire asked about both 'process' and 'product' of the project:

"The term Process has been used to refer to all activities – physical or non-physical – which have been carried out or performed during the course of the refurbishment whereas the term Product denotes the final outcome of the project, i.e. provision of envisaged, planned, designed, or otherwise, changed spatial layouts and/or spaces" (Excerpt from the survey questionnaire).

This was followed by two open questions; one on how the participant thought that any of the above aspects could have been improved and the other to provide them an opportunity to express any other opinion or comment they may have had.

The third stage was to invite a focus group formed of key user stakeholder representatives during which an open discussion was coordinated starting with some specific questions to investigate in more depth and detail how the participants felt about the conduct of the processes and the final product of this project. The focus group consisted of five staff members including 2 technical staff, 2 administrative staff and 1 member of academic staff. Each were members of up to three different stakeholder groups in the actual project (as opposed to the research) including user group, colour and soft furnishings group, steering group and logistics group. The focus group conductor was also an active member of steering group and user group but stayed neutral in their data enquiry during the meeting.

DATA ANALYSIS AND RESULTS; PRE-RELOCATION

This research is centred on a case study of the refurbishment of an academic building. The building dates back to the 1960s, is ten stories high with a concrete frame having approximately 12,000 sqm in gross floor area.

The project will cost approximately £27m and incorporates labs, lecture rooms, offices and social spaces. The design team were selected by multi-criteria competition and the contractor chosen under a framework agreement. At an early stage the

decision was taken to phase the refurbishment whilst keeping as much of the building occupied as possible.

Review of the brief, tender document and the design intent revealed the main drivers, initiatives, criteria, needs, wants and requirements with which this project came to realisation. However, not all of these maintained the same weighting through the project phases (from the way they were perceived when the project first initiated). On the top of agenda was sustainability, energy use and carbon footprint reduction. The University of Brighton commitment to the environment and the desire to score highly on the Green League table for the past few years seemed to provide a major influence. Fortunately this remained on the agenda right to the end and is still understood to be the main driver for change. Another (restricting) factor was the difficulty in provision of adequate means of escape – limiting capacity due to height and configuration of the building. Another driver for the project (evidenced from the initial client's brief) was to cater for open plan spaces with high degree of flexibility so that the internal spatial layouts could be altered swiftly based on changes in needs and requirements of different user groups over time. This however, was strongly objected by the members of academic and administrative staff backed up by some academic evidence highlighting inappropriateness of such spaces for the academic activities where issues around rising noise – with direct and indirect effects on well-being of the staff, distraction, intervention, and also confidentiality may arise. Another desire was to reconfigure the façade of the building to change the image of the school and the university and to make it more fit-for-purpose as a 21st century modern university. Due to limitation on budget and other (unverified) concerns around planning permissions and building control, this latter idea was abandoned. There were also some other criteria but with less importance which stayed more or less untouched to the end of the project. In summary documentation suggests that the project aims to:

- transform the learning experience of students
- support the university's target to cut carbon emissions by 50 per cent by 2016
- realise research ambitions
- meet sustainability targets
- make a positive difference to communities – 'locally, globally and professionally'.

After the initial review of project documents, it was deemed important to gauge how the users felt engaged and satisfied with the process and outcome of the project as the first phase was approaching completion. A survey questionnaire was distributed to people across three schools within the Faculty of Science and Engineering in the University of Brighton via university mailing list prior to any permanent relocation. The list includes the dean of the faculty, heads of schools, senior management team, academic and research staff, administrative staff, technical support staff, and PhD students. Highlighting the confidentiality of research, the participants were given the choice to email their responses, or print them out, fill them in anonymously and place them in the researchers' pigeonholes. An online survey was intentionally avoided as it was felt that the sense of ownership would be lost. The purpose of the questionnaire was to gauge opinion from a user's point of view. Roles were classified as academic, administrative, technical staff and others. Responses were received with a distribution of 24 academics (of which one was a head of school), 4 administrative staff, 3 technical staff and 2 (PhD students). Results for the different aspects studied are presented in figure 2 for 'process' and figure 3 for 'product'.
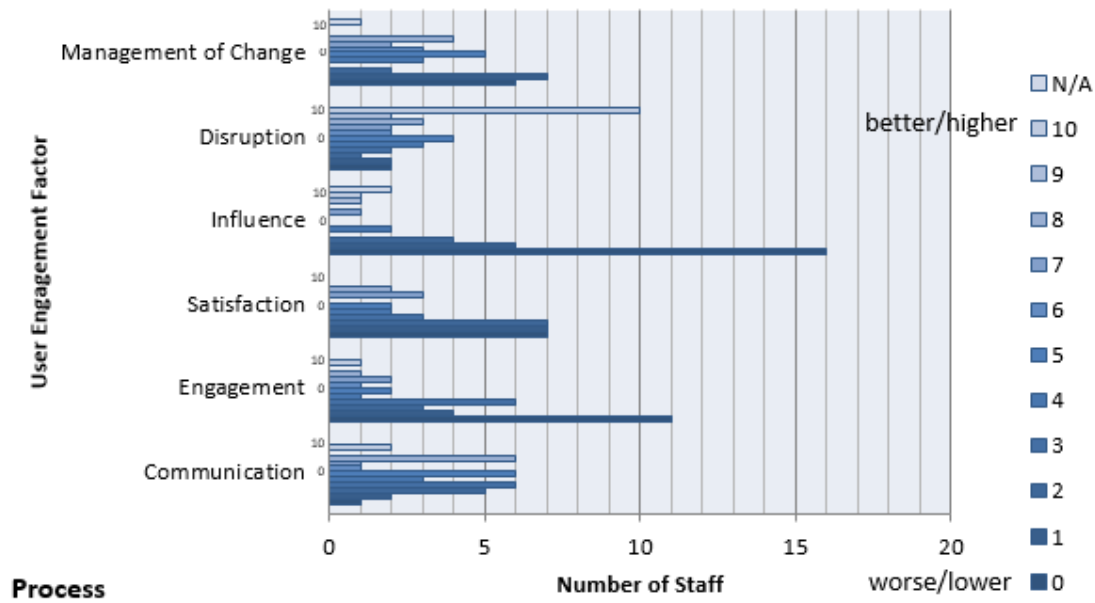
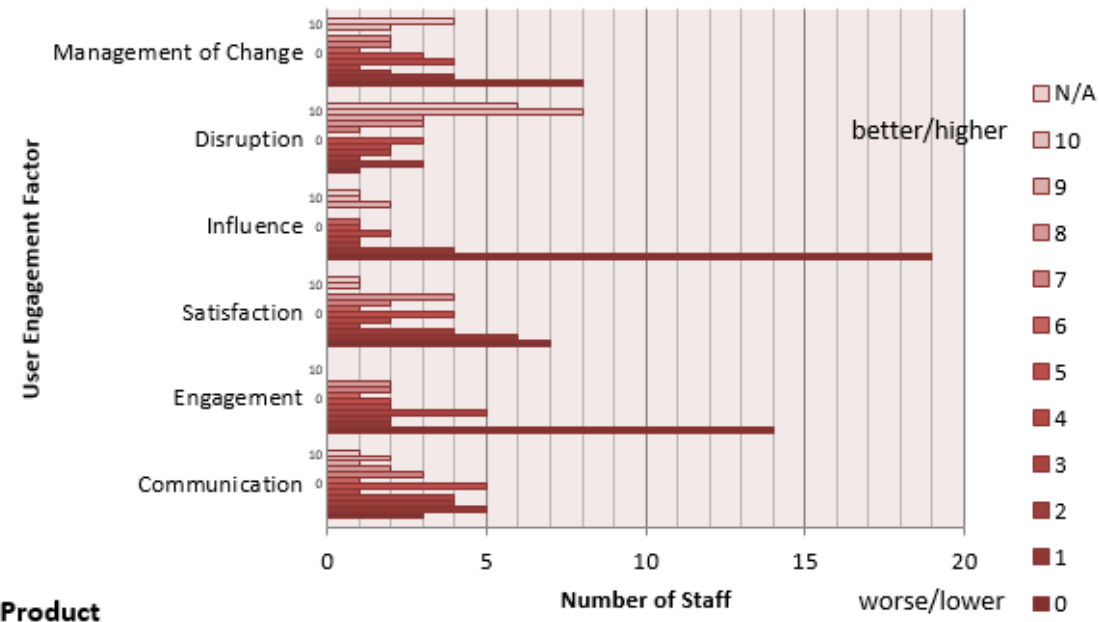*Figure 2: Users' opinions about their involvement in the process*

Figure 3: Users' opinions about their involvement in the product

Engagement and influence showed the poorest results for both process and the product. For engagement 11 scored 0 for the process and 14 scored 0 for the product, while influence showed an even poorer result of 16 scores for 0 in process and 19 scores for 0 in product.

Taking into account that the project is not complete yet and only one floor has been occupied (most in interim moves and due to be relocated as the project proceeds), the results of this part of the questionnaire are more based on what has been communicated with the end users through steering committees, open meetings, the university website and occasional announcements or updates. Satisfaction with the product i.e. the final design was less than average, and this is subject to change once the process of relocation is completed and the users can get a better feeling of what

they have got as their new working environment.

Opinions on communication are more evenly distributed (42% believe the information regarding the process was poorly communicated, and 30% and 27% thinking that the communication was somewhat acceptable or higher than average.

Opinions regarding management of change were not significantly better. For the process this showed 78% rated this as very low or low and 68% very low or low for the product. Quite expectedly disruption was a major concern among the participants with 79% and 60% believing that it was medium to very high for the process and the product accordingly. Those who thought disruption was handled properly belonged to participants who do not reside in the building where the refurbishment is underway, but are among those who are supposed to move in once the project is complete hence included in this study. Comments on how any of aspects of this refurbishment project could have been improved varied vastly from very one-off specific suggestions to wide-spread generic recommendations. The main areas covered include:

- Stakeholder involvement and their level of influence on design (both positive and negative)
- Review process
- Noise impact and distraction levels
- Learning from past experience (tapping into the existing knowledge gained from other refurbishment or new projects in the University of Brighton)
- Listening to the users and reflecting their opinion on the design
- Communication (verbal, meetings, steering groups, emails, website)
- Time management
- Management of change (both positive and negative)
- Logistics (both in general and particular to actual move timelines)
- Understanding and care for the nature, requirements and necessities of the work environment in academia

At next stage a focus group meeting was held to verify and dig deeper into the findings of the questionnaire survey. The results of the focus group meeting complemented the findings of the survey, some by moderating the comments from the surveys, such as:

- You can't have a building designed by everybody working in it. Once design was in place I felt able to contribute to final fit.

While there were also some critical views about both the process and product which reinforced some key findings from the survey:

- …the raised floor finish is a massive disaster – will be changed in six months. We'll end up with carpet tiles which is one thing they didn't want
- …in terms of the design – the light office environment – I'm really looked [looking] forward to it.
- …dusty high level shelves/ducts – let's face it, the university cleaning spec isn't going to take that into account!
- …we're wasting £26M unless we invest in proper cleaning – it's the most filthy building in the whole estate
- …there's been a decorating blight
- …issues of security and doors being left open overnight

- …difficult for lay person – most of us will look at blueprints and just get the shape of the room. We needed a newsletter. We could have used students! We have looked at it but we don't understand it
- …this [project] has opened up weaknesses in the communication strategy…
- …What's interesting for me is …very strong drive to redesign Cockcroft for students and less thought for people who were there for 8-9 hours [per day]…

There were also some very detailed problems raised:

- Window replacement (out of sequence with other refurbishment works) and the disruption as a result
- Tinted glass and the need for blinds (or not) and some controversies which arose around this issue
- Open plans or cellular offices and a long process of consultation and debates for and against the proposal
- Raised floor, the needs and necessity for them
- Concerns about the raised floor system and finish
- Serious concerns about acoustics
- Very serious concerns about communication, how it was managed, conducted and how the information was conveyed to different groups of users.

DISCUSSION OF FINDINGS AND CONCLUSION

It is interesting to contrast the far-from-satisfactory results in engagement and influence with the scores for communication which seems to have a fairly balanced distribution. This suggests that the communication process has been successful only in one direction – that is the information has been communicated from the design team to end-users in an effective way, while stakeholders do not consider it to have been successful in the other direction – that is they have not been listened to. It may also suggest that stakeholders consider there has been a 'tick-box' culture with little actual influence or effect on the process of decision-making. The university seemingly attempted to address this issue by the appointment of a high-ranked spatial planning consultant.

There is no question that due to frequent and fast changes in the client brief some of the initial provisions in the design brief and design intent have not been updated accordingly. This left some of the design decisions obsolete. This means that there is no intended 'end' left to justify the 'means'. This may also explain issues around user engagement being linked with or exacerbated by issues such as vague design intent and an occluded design decision-making process (Kelly *et al*., 2005), inadequate information processes (Bouchlaghem *et al*. 2004), inefficient collaborative working practices (Bertelsen and Emmitt 2005), and ineffective performance monitoring (Preiser 2002). These are all areas which are subject to further investigation when the next stage of data collection (post-relocation) is carried out and the interviews with the senior management team are conducted so that the deficiencies of user engagement processes can be traced back into their roots where the solutions could have been formulated to prevent such deficiencies from the source.

In managing refurbishment of educational premises where occupants remain in place the need to effectively communicate and to achieve *"buy in"* from users during the construction phase would seem crucial. Satisfaction achieved during the early stages of the project (or lack of it) is likely to carry on over to the final stages and well into occupation of the final product. Views on the success of the communication process

suggest that information was communicated from the design team to end-users in an effective way but that stakeholders do not consider their views were adequately heard or addressed. Furthermore it is apparent that key design decisions were often taken with a somewhat subjective view resulting in the probability of additional and unnecessary expenditure to rectify earlier errors in decision-making.

It was found that some problems were of such trivial importance that they could have been rectified using inconsequential improvements in the process of communication with, and engaging, the end-users in the process of change. However, some other rather substantial issues which were raised during this study do not seem to have been of the same scale that could have been easily foreseen, avoided or remedied. Such problems are more likely to be addressed using a more systematic approach to user engagement. This however, is yet subject to further investigation and can be commented on once the second stage of this study is completed.

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