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BENCHMARKING FACILITIES
A PHENOMENOLOGICAL VIEW

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Introduction

Property and facilities managers are involved in the performance measurement of real estate assets. Of particular interest to this research are the methodological issues determining how performance indicators are established and subsequently monitored and assessed.

In general, methods adopted apply a positivist approach often employing parametric measures. Thus, a common technique is to adopt a series of technical performance indicators, benchmarking an individual facility's performance against that of other facilities (Massheder and Finch 1998).

The exploratory work reported here argues that the inability of these techniques to address new issues may force a paradigm shift.

Benchmarking

Benchmarking emerged in the USA in the late 1970s in response to Japanese competition particularly in manufacturing. It is now seen as a critical management tool,

> *"The use of benchmarking is regarded by many as a panacea to modern day business problems. Irrespective of what business you are in, or the financial state of your business; proponents of the procedure insist benchmarking, if correctly applied, ensures organisations are able to gain the competitive edge necessary in today's world."*
> Massheder and Finch (1998)

However Massheder continues to say, "Cursory evidence suggests that benchmarking in relation to facilities management is commonly being incorrectly applied" (Massheder and Finch 1998). This argument is carried

further by Hamel (1996) who looks at the issue of "perceived value" arguing that if customers perceive value then it is real.

> *"The goal is not just to focus on a few things at a time, but to focus on the right things; to target those activities that will make the biggest impact in terms of customer perceived value."*

Clearly, the issue here is that forms of measurement employed should have regard to the views of building users. Technical performance indicators are those usually adopted within the property domain. Thus, Baum (1994 p.35) in developing a building quality and performance taxonomy argues for distinction between three fundamental determinants as a basis for analysis: external appearance, internal specification and technological flexibility. Obsolescence, in its various forms, is accepted as a component of each of these determinants. Somewhat rarely in the property literature, however, Salway (1986) within four obsolescence categories, includes social obsolescence resulting from occupier's demands for improved facilities.

A further imperative for methodological change is to be found in the increased demands to scrutinise organisations' performance. Organisations have to respond ever more quickly to structural changes in their markets. Technological and other changes are also happening at an increasing pace and the ability to manage change is crucial (eg see Varcoe ,1991). Emphasising this point Powell (1991) comments that facilities must be capable of maximising the efficiency of the operation that takes place within them and that organisations cannot be hampered by ill-fitting and unsuitable premises.

There has been some discussion on the impact that the physical environment can have on productivity and in terms of achieving organisations' key

objectives (e.g. see Becker, 1990). The provision of a dedicated functional environment could, he argues, either detract from the activity taking place inside, be neutral in its effect, or could enhance it.

Despite the significance of these issues functional performance of buildings has had less attention in terms of research than has structural economic performance in terms of rental levels and yields. In addition, where functional performance of buildings is measured, the performance indicators are often chosen by property managers and occupiers appear to be consulted rarely on a formal basis.

Research Methodology

The focus of this research is the relationship between the design characteristics of a building and its performance. However, the work seeks to move away from a positivist methodology relying on an evaluation of the 'technical' criteria usually adopted in the literature. These objectives, therefore, require a paradigm shift towards a non-positivist (i.e. humanist) methodology. The first step in this process was, therefore, to seek to identify generic design features of a building which have greatest influence on the occupier. Second, to compare these criteria with those normally adopted by professionals and reported in the positivist literature.

By its nature, therefore, the research is exploratory. Also, given the range of components that require to be examined for different categories and functions of building it was decided to develop the initial research methods within an applied context which facilitated data collection and analysis. Initial work has, for these reasons, been carried out within universities using students as surrogate building occupiers and the managers of those buildings as the professionals responsible. This also has the coincidental benefit of providing evaluative links with the educational literature.

The research is able to evaluate (surrogate) occupiers views, property professionals' views and finally, any correlation between them thus evaluating the research methods employed by triangulating the findings.

Occupiers Views

Using the opinions of students as being representative of those of a building occupier, initial research concentrated on identifying design criteria perceived by them to affect the operational function of lecture theatres. It had already been established that the literature, generally was divided broadly into two disparate sectors. First, work on educational issues and the working environment and second, work in relation to design or the 'technical' specifications of facilities. (Fleming & Storr, 1999). A major objective of the work was to synthesize these components.

In order to progress within a phenomenological methodology the generic deign variables of lecture theatres were established from discussions with student groups who were asked to express what components of a lecture theatre affected their learning experience. Having established the 16 design components that were thought significant each variable was evaluated by use of a questionnaire. A seven-point Likert Scale was employed to gain a relative view of each design variable by asking respondents to score each in a range of 1=very important, through to 7=unimportant. Responses were analysed using SPSS to produce a rank of scores, Table 1 below. The lowest score represents the feature considered most important on average.

Table 1. Importance of generic design criteria

Design Factor	Mean Score	Rank
Quality of audio visual	2.24	1
Desk Space	2.33	2
Visibility of visual displays	2.48	3
Accoustic quality (internal)	2.49	4
Seating Comfort	2.57	5
Illumination (Natural)	2.61	6
Ventilation	2.64	7
Occupancy level	3.17	8
Illumination (Artificial)	3.25	9
External noise	3.42	10
Distractions	3.47	11
Appropriate size	3.58	12
Position of lecturn	3.69	13
Rake	4.12	14
Internal finishes	4.28	15
Shape of the room	4.54	16

This work established the significance of building design variables on the learning experience of students in university lecture theatres and the results provide an initial view of occupiers' perceptions.

From this initial analysis Fleming and Storr (op cit.) concluded that by rethinking the selection of performance indicators the management of university accommodation could be focussed on appropriate key performance indicators not necessarily of a technical nature but related to their operational effectiveness. Further work is underway to identify the cost relationships involved in providing satisfactory facilities.

Property Professionals' Perspectives

The next stage of the research examined property professionals' views. Managers of university facilities were asked to express their evaluation of the design criteria using the same Likert Scale questionnaire completed by students. An analysis of the comparative results is shown in the table below.

Table 2.

Facility Manager / Occupier design criteria comparison

Design Factor	Student Mean	Facility Manager Mean	Student Rank	Facility Manager Rank
Quality of audio visual equipment	2.24	2.07	1	8
Desk Space	2.33	1.80	2	6
Visibility of visual displays	2.48	1.20	3	1
Accoustic quality (internal)	2.49	1.79	4	5
Seating Comfort	2.57	1.64	5	3
Illumination (Natural)	2.61	2.87	6	11
Ventilation	2.64	1.53	7	2
Occupancy level	3.17	3.40	8	13
Illumination (Artificial)	3.25	1.71	9	4
External noise	3.42	2.75	10	10
Distractions	3.47	1.87	11	7
Appropriate size	3.58	2.67	12	9
Position of lecturn	3.69	3.20	13	12
Rake	4.12	3.47	14	14
Internal finishes	4.28	7.60	15	16
Shape of the room	4.54	3.50	16	15
Standard Deviation	0.73	1.52		
Correlation Coefficient r		0.682		0.703
Coefficient of Determination r2		0.465		0.494

It will be observed that the property professionals' demonstrate a wider range of view than that expressed by student occupiers.

Both rank and score correlation coefficients are provided to satisfy potential debate on the appropriateness of using a Pearsonian coefficient for data of this nature. However, on the measure of correlation only, the data display a reasonable relationship although whether the explanatory relationship of under 50% is thought adequate is a matter for further consideration.

Furthermore, if the rank orders from the two groups of respondents are compared a different conclusion may be reached.

Table 3

Design Factor	Student Rank	Facility Manager Rank
Quality of audio visual equipment	1	8
Desk Space	2	*6*
Visibility of visual displays	3	1
Accoustic quality (internal)	4	5
Seating Comfort	5	3
Illumination (Natural)	6	11
Ventilation	7	2
Occupancy level	8	13
Illumination (Artificial)	9	4
External noise	10	10
Distractions	11	7
Appropriate size	12	9
Position of lecturn	13	12
Rake	14	14
Internal finishes	15	16
Shape of the room	16	15

Table 3 highlights the design factors that show substantial variance in ranking between the two respondent groups. These are almost all in the upper range of the students' (occupiers) taxonomy. Of the eight selections one-half demonstrate a lower ranking by the professionals and one-half

higher. Further investigation of the variables relationships was carried out to attempt to determine the cause of the variation.

It was known that the determinant of the students' views was the perceived effect on their learning experience since this was prescribed in the initial discussions. However, a significant question remaining was whether, despite being asked to consider the occupiers' view of design components, the facility managers' views were influenced by other criteria. Obviously, one potentially influential criterion would be that of cost. A further question was added to their questionnaire, therefore, evaluated in a similar way, to examine whether cost was considered to be a significant decision component. The results, however, show only a 6% relationship (correlation coefficient) between the significance of the design criteria and their cost. It seems, therefore, that property managers are not strongly influenced by cost in their perceptions of occupiers' needs. This is not to say of course that they are not aware of the significance of cost per se and further work is underway to determine what if any causal factors are present.

Conclusions

This exploratory research has identified important factors in the relationship between building design criteria, the perceptions of occupiers and those of facility managers. Admittedly, the data set is small and represents only the perceptions of one type of facility in the university environment. However, the work does demonstrate significant potential in the exploration of building performance.

In addition it also begins to develop a method to elicit 'inhabitants perceptions of their environments. It also establishes a technique for identifying benchmarks of performance against based upon occupier perceptions. The next stage in the research will be to investigate the relationship between this performance benchmarking approach and other property performance

indicators. Clearly there is also a need to investigate further the causal relationships involved. Perhaps more importantly, work is underway to apply the methodology in a commercial context seeking to consider the relationship between occupiers' perceptions and investment performance.

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