

OFFICE ENVIRONMENTS THAT ENABLE HUMAN CONTRIBUTION

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Abstract

The aim of this paper is to evaluate approaches to office productivity improvements. The author presents two contrasting approaches to office productivity improvements. The review aims to establish that cost is not the only consideration when considering office productivity. The human dimension is included in the debate by establishing the occupier perspective. Past and current thinking are explored. The author presents an historical context to office design and reviews appropriate literature. The review of the literature reveals that relatively small increases in employee productivity can greatly outweigh significant reductions in real estate costs. This "leveraging" approach highlights the need for greater emphasis on the occupier perspective if significant office productivity improvements are to be made. Whilst it is appropriate to ensure that real estate costs are monitored and controlled, this should not be undertaken if it restricts employees' ability to perform their job as productively as possible. This paper establishes that the "people-centred" approach to office evaluation is most appropriate for office workers with varying job tasks and allows the end user or occupier perspective to be established.

Keywords: Office evaluation, Office layout, Office productivity, Workplace.

Introduction

This paper will aim to establish that the quest for productivity improvements has led to two different paradigms, the control paradigm and the enabling paradigm. The control paradigm aims to improve productivity through greater efficiency, which when applied in practice usually means a reduction in resources, which can be either financial or actual space. The enabling paradigm acknowledges the human asset and the creation of knowledge capital as a means of improving office productivity.

The Hawthorne studies (1927-32) identified that establishing a link between the performance of employees and their working environment was a complex one (Roethlisberger & Dickson, 1939). The studies identified that the physical factors of the working environment were not the only factors involved in impacting on productivity. The social factors, and the wider issues of human relations, played a significant role in determining worker productivity.

It could be argued that the output of the modern office is dependent on the human relations and the quality of the interactions undertaken in the office environment (Haynes & Price, 2004). However, Laing (1991) proposes that the conventional office design restricts its occupiers' ability to be creative, as it tends to be based on people working on their own, and offers little possibility of interaction with other office colleagues. This approach to office design can be traced back to the scientific management principles proposed by Frederick Taylor (Laing, 1991 & 1993; Duffy, 2000). This tension between the demands of the modern office, and the traditional office supply led Laing (1991) to call for office design to go beyond the mechanistic approach, and to consider the dynamic and flexible nature of the office environment.

Whilst the academic argument to create an office environment that enables productivity through knowledge creation and knowledge transfer appears to be made (Haynes *et al*, 2000), Duffy (2000) reminds us that practicing facilities managers are kept under pressure to reduce costs. This constant pressure to demonstrate cost reductions keeps the facilities manager functioning at the operational level within the organisation (Duffy, 2000). If facilities management is to truly function at the strategic level, then it must demonstrate to the organisation that it is more than just a cost cutting department.

Historical context

During the start of the twentieth century the prevailing paradigm with regards to the design and management of work process was that of scientific management (Taylor, 1911). The methodology proposed by Frederick Taylor was that if time and motion studies were undertaken then the most efficient way of task performance could be identified. Once this optimum way of performing any given task was established, it was then standardised so that all employees could then adopt the optimum work method. The strength, and ultimately the weakness, of this approach is that the worker was perceived as a potential source of error and therefore their direct contribution had to be minimised as much as possible, through not only standardised work methods, but also standardised working environments (Stallworth & Ward, 1996). Oseland (1999) proposed that Taylor was well aware of the limitations of his scientific management techniques.

"Taylor acknowledged that his methods were only appropriate for factory operatives and would not work for intelligent employees because of increased monotony." (Oseland, 1999, p7)

Duffy (1998) proposes that the dominant culture of offices in the twentieth century have their roots in the ideas of scientific management proposed by Fredrick Taylor. The transference of Taylor's mechanistic paradigm from factory to office appears to be paralleled by the way that productive offices were measured.

An early example (1904) of an office building designed, and built, on the Taylorist principle was The Larkin Building in Buffalo, New York (Duffy, 1998). The architect was Frank Lloyd Wright, and the building was a purpose built headquarters for the Larkin Company. The building was designed to represent an ordered structure, with architect -designed desks, which allowed little freedom of movement for the employees. The clerks working in the building were perceived as units of production (Duffy, 1998)

The Hawthorne studies were early attempts to link the performance of employees to their working environment. The studies took place at the Hawthorne plant, which was part of the Western Electric Company. The research directors were Elton Mayo and F.J. Roethlisberger. The purpose of the research was to establish how a productive and satisfying working environment could be achieved (Roethlisberger & Dickson, 1939).

The results of the Hawthorne studies led the research team to conclude that it was the social factors that were more important than the physical factors with regards to employee satisfaction and productivity.

Duffy (1998) cites the Hawthorne studies as clear evidence that any single environmental variable is overlaid with the wider issues of human relations. He goes on to call for a more appropriate approach to measuring environments called "open social -technical systems".

Duffy (1998) claims that as a consequence of the Hawthorne studies no serious research into the effects of environmental variables and productivity were undertaken for a number of years. Cairns (2003) proposes that it was the Hawthorne studies that led to the acceptance in organizational theory of the dominance of social over physical factors.

Cairns (2003) go on to suggest that:

"There is no doubt that study of the interrelatedness of the physical and social environments as complex contributors to individual motivation and satisfaction has remained relatively undeveloped, and certainly not part of "mainstream" management studies" (Cairns, 2003, p98)

There is clearly a need to better understand the office environment by evaluating both the physical and the social components, and their respective effect on productivity from the end user's point of view. This "occupier perspective" approach to office environments can also address the criticism that office providers are detached from the office users.

The changing physical office environment was identified by DEGW who led two major studies in 1983 and 1985 called the ORBIT (Office Buildings and Information Technology) studies. These studies attempted to investigate the impact new technology would have on office design (Duffy *et al*, 1993). The studies identified the changing requirements and functionality of the office

environment, and as a consequence called for greater consideration to be given to cables, hotspots, ergonomics and environmental problems. However, Duffy (1998) acknowledges that whilst the ORBIT studies predicted certain changes in the office environment, they did not predict the change in the way information technology could free office workers from the office environment through the virtual office.

The constant changing demands on the office environment has led Duffy (2000) to identify the need for facilities managers to be more active and strategic in creating office environments that meet organisational requirements. This approach places facilities management central to the provision of productive office environments.

Corporate real estate and productivity

To ensure that a high performance work place is created there is a requirement to align the workplace strategy with the real estate strategy and ultimately with the business strategy. This alignment can only be achieved if the impact of the office environment on its occupiers' productivity is integral to the decision making at the strategic level (Duffy, 2000).

Lessons can be learnt from the UK public sector, as a number of initiatives have been undertaken to align the workplace strategy to the property and business strategy. The ultimate aim of such an approach has been to increase organisational performance. A few examples are:

- *"Working without walls"* a publication produced by OGC (Office of Government Commerce) and DEGW highlights the benefits of using the changing workplace as a means of organisational change. It proposes increased flexible working, through openness and collaboration, as a way of delivering improved organisational performance (Allen *et al*, 2004).
- *"Better Measurement Better Management"* - This publication by OGC (2006) proposes techniques and standards of measurement developed in conjunction with IPD Occupiers. In addition to the property cost data the performance framework attempts to measure the effectiveness of the property provision by including an element called "workplace productivity appraisal".
- *"High Performing Property"* - This is an initiative by OGC (2006) to improve value for money of public buildings. The initiative presents a framework for strategic property asset management. Fundamental to the framework are property standards and property benchmarks.

Adding value through the human asset

Whilst it may be well understood that in most organisations the two most important assets are its people and its property, the linkage between the two is not (Becker, 1990).

Weatherhead (1997) argues that with staff cost in the region of 70 -80% and real estate costs approximately 20%, then a relatively small increase in productivity is greatly more beneficial than a small reduction in real estate costs. This leveraging argument highlights that whilst real estate and facilities managers may be constantly aiming to reduce cost, the greatest gains are to be made if consideration is shifted to improving organisational productivity (Oseland, 1999). This leveraging approach can be argued the opposite way; mismatching people with their work environments could have a significant impact on overall organisation performance (Mawson, 2002).

The same "leveraging" argument is adopted by Becker and Pearce (2003), who propose an integrated cost model. The model consists of both corporate real estate and human resource factors. They call their model the Cornell Balanced Real Estate Assessment model, COBRA, which includes the three main variables: measures of productivity, human resources costs and real estate costs. Together the three variables in the model enable organisations to make strategic real estate decisions.

"HR impacts can be highly significant, and if incorporated into a single model might lead to recommendations very different from those based only on the direct real estate costs." (Becker & Pearce, 2003, p233)

A typical example would be the evaluation of a new capital build. If the choice was between a basic development or one of a higher standard, and subsequent cost, the costing model would

predict the appropriate rise in employee productivity required to pay for the more expensive option. Although this raises the issue of productivity measurement to the strategic level, thereby allowing organisations to make informed decisions by identifying the potential consequences of their decision on productivity, the productivity measure used is determined from the increase in turnover, and is therefore not a direct measure of individual productivity. It could also be argued that since the productivity measure is not derived from the individual level, the COBRA model could potentially be used as a cost reduction model since the true impact on individual productivity is not incorporated.

The productivity measurement debate is developed by Clements -Croome & Kaluarachchi (2000), who propose that a responsive working environment should create a sense of well-being. They propose that productivity is dependent on "healthy buildings", and therefore widen the debate about productivity measurement to incorporate health, well-being and comfort. They propose a five level analytical hierarchy process model to represent the main factors that influence productivity. The model contains environmental factors such as temperature and humidity, ventilation, lighting, crowding and then links them to health factors which are defined as respiratory, skin, nervous, nasal and related problems. Whilst this model contributes to the measurement of environmental and comfort components associated with productivity, it lacks the social and behavioural components that are an integral part of a modern office.

The main weakness of the analytical hierarchy process model, proposed by Clements -Croome & Kaluarachchi, (2000), is addressed by Clements -Croome (2000) by the inclusion of a social concept as being a factor which has an affect on productivity (See Table 1). Although this proposal lacks the operationalization of the concepts to actual measures, it does provide a theoretical framework for considering productivity measurement, which has been previously lacking.

Table:1 Factors that affect productivity (Clements-Croome, 2000, p11)

Factors which affect productivity	
Personal	Career achievement home/work interface intrinsic to job
Social	Relationship with others
Organisational	Managerial role, organisational structure
Environment	Indoor climate, workplace, Indoor Air Quality

It could be argued that the only concept that the property or facilities manager can control would be the environment component. However, with the growing requirement for office environments to be more knowledge exchange centres, there is a challenge facing office designers which is; can they create office environments that enable greater knowledge sharing and interaction, thus making the social factor an integral consideration for the modern office. Price (2001) recognises the limitations of current research and developments in working environments by establishing a need to address the psychological needs of individuals.

The office occupier perspective

If the debate about office productivity is to move away from, and beyond, the traditional cost cutting methods, then greater emphasis needs to be placed on understanding of offices from the occupier perspective (Stallworth *et al*, 1996; Fleming, 2004). This approach is supported by Oseland and Bartlett (1999) in their book *"Improving Office Productivity: A guide for business and facilities managers"*

"The purpose of this guide is to increase the productivity of organisations by enhancing the output performance of their staff. This is a fundamental departure from the traditional strategy for office productivity which focuses on cutting input costs with little or no regard to the impact on staff performance." (Oseland & Bartlett, 1999, pxiii)

To increase understanding of staff performance there is a requirement to view offices as dynamic complex environments, which enable and support the work patterns of their occupants (Becker &

Steele, 1995). This requires greater consideration to be given to the behavioural patterns of office occupiers (Nathan & Doyle, 2002).

Duffy (1992) makes the connection between the environment, productivity and people, and argues that research into office design has to be based on the "user perspective".

Mawson (2002) claims that, from the research undertaken over the years, there is little doubt that the working environments have an impact on the occupiers' productivity. However, establishing a quantitative measure of the impact has proved to be more difficult. He develops the occupier perspective approach, by proposing that the two major causes of productivity loss in offices are caused by:

- i) Distractions
- ii) Mismatch between the occupiers work activities and the work environment provided.

Distractions are defined as:

"Anything that takes attention away from the task to be performed. Distraction emanates from unexpected stimuli, which can take the form of noise, visual disturbance (e.g. glare or movement) or being too hot or too cold. It can also stem from the failure of services and systems (e.g. equipment or networks) that inhibit tasks from being performed effectively." (Mawson, 2002, p 3)

This definition is wide ranging, but tends to concentrate on the physical and technical components of the working environment, and therefore lacks the behavioural component. However, Mawson (2002) acknowledges that distractions may not always have a negative effect on performance, stating that for some people an element of distraction, such as background music, may actually aid concentration. Having acknowledged that distractions can be beneficial for some people, he goes on to propose that a distraction free working environment is more productive than an environment that has a number of distractions throughout the day.

"Seventy minutes of productivity is lost in a typical eight-hour day as a result of distraction." (Mawson, 2002, p4)

It is proposed that 15% of the working day is lost productivity caused by general conversations. This approach appears to suggest that only constant work is productive work, and that general conversation, i.e. the social environment, has a negative effect on occupiers' productivity. Both these stances appear to support the 'old' Taylorist management paradigm that office workers should have their heads down, and be concentrating on tasks and outputs (Laing, 1993). Also this approach does not appear to value the chance conversation, which could allow the creation and transfer of knowledge and new ideas (Haynes, 2005).

The preoccupation with distraction free work tends to marginalize the benefits of interaction through conversation in the modern office (Price and Shaw, 1998). The enhancement of social interaction can be the conduit for increased office productivity (Haynes, 2005).

The second major cause of productivity loss, as identified by Mawson (2002), is place mismatch. This is when the office environment does not support the work process undertaken in that environment. It is therefore proposed, that a mix of workplace settings and services be provided as enablers, so that people can provide their best performance.

"However to get to this point requires examining the way individuals, teams and organisations work, both in a physical context as well as in an information and knowledge context." (Mawson, 2002, p7)

Although Mawson (2002) identifies the need to establish office occupier's work processes, so that they can be matched against their environments, no method of categorising work processes is suggested. Haynes (2005) proposes that the concept of evaluating the match between the work process and the environment is an important one. He adopts the work processes proposed by Laing *et al* (1998), and presents evidence to suggest that office productivity can be affected if a mismatch between the work environment and the work processes is created (Haynes, 2005).

Van Ree (2002, p357) attempts to summarise the debate about the impact of office accommodation on organisational performance by stating that fundamentally there are two main approaches to contribute to organisational performance:

- i) Achieving greater efficiency by reducing the occupancy costs by reducing the amount of space per employee; and
- ii) Achieving greater effectiveness by improving the productivity of the employees by providing a comfortable and satisfying working environment.

The first has probably been the prevailing paradigm for most real estate and facilities managers with regards to justification of office refurbishments (Haynes *et al*, 2000). It is proposed that the second approach is where the debate about productivity improvements should be centred, as this is where the greatest impact on office productivity can be achieved (Haynes, 2005) ¹.

Future Research

How organisational culture, more specifically office culture, and management style link to office productivity is a further area for development. The development of management style and cultural metrics would greatly assist in understanding the behavioural environment. Aligned to this kind of research, and a possible linkage between the physical environment and the behavioural environment, would be an evaluation of how cultural cues are sent through the use of the physical environment.

This area of research would benefit from further classification of the office occupiers. A greater understanding of the individual could be obtained if personality type questions were included at the questionnaire stage. A standard personality test, such as the Myers Briggs, could be adopted thereby allowing classification of respondents by personality type. Similarly, questions that relate to how the individual works in groups could be included, therefore establishing a better understanding of group dynamics and group behaviour ².

A longitudinal study would provide an opportunity to establish, in the first instance, a base line data set, so that subsequent evaluations would have terms of reference. This constant review of the office productivity would enable deviations to be established. As part of the longitude design it is suggested that both quantitative data and qualitative data should be collected. The quantitative data could be gathered using the survey method, and the qualitative data could be collected using focus groups and interviews. It is proposed that both forms of data would be useful, but for different purposes, during the period of study. The quantitative data could establish what the issues were with regards to office productivity, and the qualitative data could be used to establish the context, or the meaning, of the quantitative data. It is proposed that this iterative process that includes both quantitative data collection and qualitative data collection would provide insight into the changing, and dynamic, nature of the office environment. ³

Finally, a possibility exists for observational and ethnographic type of research to be undertaken to further develop the understanding of the relationship between the behavioural environment and the physical environment. This kind of study could establish the movements of people within the office, with special emphasis being placed on the parts of the office that facilitate and enable interaction and the parts of the office that represent blockages and distractions to the office occupiers. Integrated into this study would be an assessment of the quantity, and quality, of the conversations undertaken in the office environment. If modern office environments are becoming more like knowledge exchange centres, then it seems appropriate to establish the optimum balance between collaborative interactive space and distraction free private individual space.

Conclusions

The purpose of the office environment has changed over the last century, from that of one which houses occupiers undertaking standard processes, to one that houses a range of different work patterns. The range of different tasks undertaken in the office environment has added to the complexity of productivity measurement. The initial assumption, that office workers adopt simple

¹ A fuller discussion of the requirement for a paradigm shift can be found in Haynes (2007).

² A possible technique would be one based on the Belbin Team Roles.

³ The author has already undertaken a longitudinal study based on this proposal, but due to confidentiality reasons the results cannot be included in this paper.

repetitive tasks, led to early office designs being based on the scientific management principles of Frederick Taylor. This approach presumed a direct correlation with the physical environment and the productivity of its occupiers.

However, subsequent evaluations have revealed the office environment to be more complex, with the productivity of its occupants being dependent not only on the physical environment, but also the social environment. The addition of the social context has subsequently meant that the definition as to what constitutes office productivity has remained ill defined.

The future for office and workplace productivity measurement is to establish links between real estate and facilities performance metrics and the organisational performance metrics. Establishing these links will demonstrate a strategic integration between organisational demand and the provision of facilities and real estate solutions.

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