

Should Health Service Managers Embrace Open Plan Work Environments? A Review

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Abstract

Introduction: In an era of changing workplace reforms, health service managers are embracing innovative work place designs, such as open plan work environments, where employees may have more flexibility. Managers are constantly seeking different ways of transforming their workplace so that their corporate culture and image can be improved. On the one hand, they must respond to corporate pressures to reduce the costs of building facilities and on the other hand they are indirectly introducing different types of issues that affect their employees.

Method: A review of the literature was conducted by examining textbooks and journal articles in relation to the various issues that affect employees in an open plan work environment.

Results: Research evidence shows that employees face a multitude of problems such as the loss of privacy, loss of identity, low work productivity, various health issues, overstimulation and low job satisfaction when working in an open plan work environment.

Conclusion: Managers need to have a better understanding of open plan work environments before embracing such workplace designs. A multidisciplinary approach is recommended when decisions are being made in relation to which type of environment is better suited to the requirements of their employees as this has an impact on workforce productivity and job satisfaction.

Key words: open plan work; office space; work productivity; job satisfaction.

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The effectiveness of new designs for a new era

In the 21st century, health service managers are moving towards embracing innovative workplace designs when designing healthcare facilities in which employees can have an improved work environment. [1] With the effects of globalisation and with the concept of work flexibility being acceptable in many organisations, the focus has now shifted to the ability to rapidly move into a flexible, open plan work environment where the individual can start work immediately. [2] The term 'open plan' refers to an office space that is divided into relatively small workstations by low partitions. [3] The workstation is arranged so that there are no high walls or doors separating the occupants. [3]

In an era of budget cuts and insufficient resources, managers are placed in a situation where newly developing organisations adopt open plan work environments, compared to the traditional use of closed office rooms. It is estimated that organisations can save up to 20% in development costs when creating an open plan work

environment. [4] Some of the arguments that are put forward in support of such open plan work environments include: a reduction in building costs thus enabling resources to be used more efficiently elsewhere; individuals have an equal amount of space; enhanced communication; more workers can be accommodated into the work space; increased collaboration between employees; employees are able to interact with each other which in turn may improve productivity and creativity. [5-7] Moreover, from an energy saving perspective, open plan environments are more energy efficient for heating and cooling than traditional closed office rooms. [5, 6]

Recent trends in newly established healthcare facilities show that most of the organisations are moving towards open plan work environments. [7] As traditional closed office rooms are becoming outdated, managers conclude that such new designs are important in providing a better work environment and improved communication between staff. It is generally accepted that employees who are more comfortable with their organisation's environment are more likely to generate better work outcomes. [8] Moreover, employee satisfaction is regarded as one of the important factors for an organisation's success and performance as it improves morale and reduces staff turnover. [9] Various researchers have demonstrated that the physical environment is important for employees as it affects job perception, attitudes and job satisfaction. [10-13] In the same manner that people value the organisation in which they work, similarly the physical setting is an equally important factor for employees. [14]

Health service managers need to understand the uniqueness and the relationship between the physical environment in which employees work and the impact it has on them. The physical environment in which a person works allows some behavioural patterns to take place, supports certain activities, and restricts others from occurring. Work environments must, therefore, be designed in such a manner that they facilitate work and do not act as barriers to productivity. The intricacy of human preferences and the processes that people pursue to satisfy them have significant implications for the way work environments are designed. Because of elaborate multifactorial demands, workplace design must go beyond cost saving to cater for the multifaceted, social and psychological needs of employees. [15]

The concept of an open plan work environment is seldom discussed in the health literature. The idea that open plan work environments contribute to employee satisfaction merits closer scrutiny as it comes with a multitude of issues.

In the majority of cases, such open plan work environments are approved without consultation with the organisation's employees. Health service managers should consider the effects of such new concepts on the health and performance of their employees before embarking on such designs.

The aim of this review is to provide health service managers with a better understanding of the different issues that arise with open plan work environments. More specifically, this review will analyse some of the major issues pertaining to open plan work environments and their impact on employees.

Methods

A review of the literature was conducted by examining textbooks and journal articles which were sourced through academic databases which included PubMed, Medline, PsycINFO, CINAHL, EBSCOhost, Emerald Management Xtra and ProQuest. A search was performed in the databases that included several keywords such as, open office, open office environment, open space work, open plan work, open plan design, open workplace, shared workplace, traditional office, office workspace, office crowding, office noise and office privacy.

Two authors (Vinesh G Oommen and Isabella Zhao) independently reviewed all the articles and textbooks that were sourced through academic databases and library search engines between November 2007 and January 2008. No date limit was imposed on the search. A modified 'appraising the evidence' assessment form [16] was used to assess the quality of the articles that would help determine whether the article should be included in the review. The decision was based on four criteria, namely: (a) significance of the article to the research topic; (b) the context of the study; (c) source of data; (d) and the type of study. [16] If any discrepancy was found in our evaluation we discussed and reached an agreement for each study. Articles were excluded if they were not published in English. Once all the articles were retrieved, a snowballing strategy was used to locate relevant references from the bibliographies of existing research articles in an ongoing process of assessment, inclusion and synthesis. As a snowballing strategy is more efficient in locating articles than solely depending on databases, [17] this was used extensively to identify important sources of information that would otherwise be missed. Textbooks were sourced through library search engines to further elucidate other aspects of open plan work environments, organisational behaviour, organisational change and job satisfaction. Where accessible, bibliographic citations, abstracts and references were downloaded into Endnote

X2 (Thomson Reuters), bibliography management software for evaluation. Following the review of relevant articles and textbooks, the sources were organised and analysed.

Issues with open plan work environments

Employers need to understand the interconnection between the physical and social systems that occur at work. Physical systems include the existing work environment, technology and job requirements. Social systems comprise people, their values, job opinions and organisational culture. These two systems are often called the dynamic sociophysical system. [18] Six different subsystems can be identified within this overall sociophysical system. These include people, job, social processes, organisation, technology and environment. [18] All of these subsystems are interrelated and a change in one of the subsystems can have either positive or negative consequences for the other. For example, people who have worked in a traditional closed office setting might find difficulty in adjusting to an open plan work environment. This might change how they work, their communication patterns and, being in a new environment, how they adjust to everything that is foreign to them. Managers, therefore, need to let go of the concept 'one size fits all' as people in the workforce are different and each person is unique.

The whole perception of the open plan work environment is that it gives employees the flexibility to work in different areas within an organisation regardless of time and place. While some employees gain a sense of freedom and mobility, others find moving around from one workstation to another stressful. In many organisations employees are territorial and are hesitant to share their physical space with other staff. [19] As human beings, people tend to be territorial not only in their personal life, but also when they work in organisations. [20] The classic example of territorial marking that employees perform is by highlighting ownership of workstations by putting their names on them, applying signs, photos and labels that communicate to others that this workstation is theirs: in other words, this 'territory' is already occupied by someone else. This indirectly communicates to others who should or should not enter and how one should conduct oneself when inside their territory. Malmberg [21] suggests that the whole concept of territorial behaviour comes from an evolutionary perspective which is a common behaviour shown by all primates. This includes marking territories of personal space in organisations in which they work. One of the fundamental reasons why employees are territorial in organisations is because they want to show others their identity and status in the organisation. [21]

Organisational psychologists have long argued the importance of giving identity and status to people in organisations as it satisfies their psychological needs. [22] This whole concept of identity comes from the hierarchy of needs model which was postulated by Maslow. [23] Maslow [23] proposed a hierarchical structure of needs, the basis of which is that lower-order needs must be fulfilled before higher-order needs. As the lower-order needs become satisfied, the higher-order needs become salient. The structure, in the order of the lowest level to the highest, is as follows: physiological needs; safety needs; belonging and love needs; esteem needs; self-actualisation needs; and aesthetic and cognitive needs. [23]

From an organisational perspective, physiological needs could include the desire for shelter and sensory stimulation. Safety needs include personal space and privacy. Belonging needs, when taken in a work environmental context, refer to maintaining social interaction and establishing group identity. Esteem needs are the expression of self-identity and status. Self-actualisation needs involve personalisation and the freedom of choice in determining behaviour and environment. Aesthetic and cognitive needs refer to intellectual understanding of environmental structure and beauty.

Issues with privacy and noise

The term privacy is difficult to define as there is no universally accepted definition. Moreover, each person sees privacy in different ways. A few authors have argued that it is more meaningful to examine privacy in terms of interests that individuals have, rather than to think about privacy as a right. [24, 25] Clarke [26] defines privacy as 'the interest individuals have in sustaining a personal space, free from interference by other people and organisations'.

An empirical study conducted by Justa and Golan [27] showed that privacy in the office includes the capacity to regulate access to one's self or group, specifically the capacity to limit others' access to one's workplace. In an office setting, privacy depends on the extent of physical enclosures. The more the physical enclosures are present, the more an employee can have their privacy. In a healthcare organisation, privacy plays an important role in daily work. As most of the health professionals' job involves analysing some form of complex information, privacy at work becomes an important factor for two reasons. First, employees doing intricate tasks may be subject to interruption or overload from social stimulation. Secondly, distractions or interruptions that arise may be unfavourable to effective functioning as the intricacy of the job intensifies. [28]

Marans and Spreckelmeyer [29] showed that employees working in traditional closed office rooms had a higher level of job satisfaction as there was more privacy, compared to those employees in an open plan environment where problems of visual and conversational privacy were very pronounced. Working in an open plan environment without walls or glass where others can see a person working is perceived by people in different ways. Even though such an environment may lead to an increased opportunity for interaction, this may also lead to other issues in relation to loss of privacy. The loss of privacy can be in terms of people being seen when they work or in relation to work related conversations being heard. [30] Compared to the traditional closed office rooms where there are no privacy issues, an open plan work environment can lead to an increased level of noise resulting in loss of concentration and low work productivity. Field and Fricke [31] point out that the common noises found in an open plan that contribute to loss of concentration in employees include noise from photocopiers, telephone conversations, air-conditioning, elevator sounds, employees talking, and people constantly moving to and fro. Noise can lead to stress, which can increase the probability of accidents happening in workplaces as employees get irritated and are not able to concentrate. [32] An important part of a person's work is to be able to carry it out without any distraction. In an office setting, most of the work is done quietly as employees need time to analyse, read and write. As noise is a dominant disturbing force in almost any office environment, this can lead to employees achieving less in a given period of time.

Many people working in healthcare organisations often fall into a professional category and have a certificate, diploma or an undergraduate degree. [33] It is estimated that 75% of today's healthcare workforce are educated workers. [33] In an era in which technology plays an important role in delivering healthcare, employees working in such organisations are dealing with complex information that requires concentration to process, examine and construe. Whether the healthcare personnel are dealing directly or indirectly with the general population, such work needs to be uninterrupted. Zalesny and Farace [34] showed that employees who relocated from a traditional office to an open space work environment were dissatisfied with their work environment as they had less privacy and more interruptions and diversions.

Research has identified 'noise' as a likely cause of employee dissatisfaction with the work atmosphere in terms of low motivation to work, [35] reduced performance [36-38] and

irritation. [39] Sundstrom et al [12] showed that 54% of the 2000 employees surveyed said that noise of people talking and the telephone ringing was a cause of distraction at work.

Employees working in an open plan work environment have lower job satisfaction due to lack of control over their physical environment. [40] This is due mainly to lack of personal privacy and lack of privileged communications. [40] Sundstrom et al [41] and Hedge [4] found that higher disturbances and less privacy were seen in larger open work environments. The researchers found that almost all highly skilled jobs were more negatively affected by the environment, as these jobs required more privacy in order to perform well. Moreover the researchers found that in all types of jobs, employees normally favoured privacy over ease of access. Sundstrom et al [41] found a positive correlation between privacy and performance, even amongst those employees whose jobs were not highly skilled.

Even though some employees do not take noise and privacy as an issue, for others it results in low work productivity and dissatisfaction with their job. [42] Furthermore, some staff might be so overwhelmed by their environment that it might lead to a stimulus overload. Overstimulation can originate from too many people, too many communications, too close proximity with other employees and small amounts of space. [43] An open plan work environment is a classic example of an environment that creates potential for overstimulation. The whole concept of overstimulation comes from the theory which states that certain features of a physical environment can cause a person to be in a state of stimulus overload. [44] In the context of an open plan work environment, staff may actually shy away from an overstimulating workplace leading to dissatisfaction with work. The latter is likely because employees may have problems concentrating on their work due to conditions arising from their physical environment. [45]

According to Hackman and Oldham, [46] dissatisfaction with a job usually leads to poor work performance. Herzberg's motivation-hygiene theory [47] states that the environment in which a person works is an important factor in avoiding dissatisfaction. Herzberg [47] argues that it is important for employers to maintain 'hygiene factors' (being used similar to the term environmental) for employees in order to avoid unpleasantness at work and to promote equal treatment. For instance, in some healthcare organisations only the senior executives get their own office and other employees may get a workspace in an open plan work environment. This can lead to dissatisfaction at work for some employees and for others it may not.

Issues with personal space and social density

Denying an employee their personal space in a work environment can lead to aggression and insecurity. [21] One of the primary reasons for this phenomenon is the way that a person works and perceives their environment, which may often conflict with other employees. [19] For instance, the way a person organises their workstation might be different to others. The same person would like to see their workstation kept the same way whenever they return to work. If many employees use the same workstation, there could be problems associated with misplaced resources, misfiled and confidential items left behind. Moreover, this type of work environment gives fewer opportunities for staff to express their status in the organisation.

Another issue that arises with an open plan work environment is the concept of social density. [48] Social density refers to the number of people that are seated closely in an open plan work environment regardless of the space that is available. [43,49] Paulus [43] and Sundstrom et al [41] argue that many people dislike socially dense work space conditions and people who dislike such working conditions have a higher turnover and leave the organisation. People who are seated closely together in an open plan work environment may suffer from physiological and psychological reactions such as stress, fatigue, and increased blood pressure levels. [50] This occurs because the employee's psychological privacy is disturbed and they think that someone is always watching them. [50] Studies conducted by DeLange et al [51] and Sluiter et al [52] have shown that physical or mental exhaustion and musculoskeletal problems are commonly seen in people working in open plan work environments.

Research has shown that some employees working in open plan work environments are more prone to eye, nose and throat irritations than employees working in traditional closed office rooms. [53-55] According to Godish [56] people working in an open plan environment are more prone to acquiring flu from other employees who are carrying the influenza virus. In some countries such as the Netherlands and Germany, the whole concept of open plan work environments is discouraged based on research evidence, as it has shown to have a negative impact on employees. [57]

Discussion

In spite of several issues that arise with an open plan work environment, it is imperative to note that not all employees have the same problems. The problems that employees have vary in magnitude as people adapt differently to varying environments. In fact, a variety of factors have been

shown to mediate between employees and open plan work environments which include job complexity and job type. [4, 41, 53]

Just because a workplace has an open plan design, does not mean low employee productivity. Employers need to survey their employees to learn what sort of difficulties they face with such workplace designs and take appropriate measures to counteract this. Before creating such designs, employees need to be consulted as they will be the people who will be working in such environments. Mullins [58] has argued that employee involvement in organisational design is directly related to job satisfaction. Employee participation in the process appears to be important whether participation results in change or not. [58]

In an organisation, employees need to be able to adapt the physical environment to fit their own requirements, to control its use and create personal spaces that will enhance their work productivity. This will give the employee some feeling of belonging to that particular space which satisfies their psychosocial desire for status and identity in the organisation. McKenna [59] suggests that if an employee is able to control their work environment this will increase job satisfaction, reduce stress and enhance work productivity.

As discussed previously, privacy in a work environment depends predominantly upon the physical environment. That is, privacy increases in the workplace when more enclosures are formed by walls or partitions. Moreover, employees attain greater privacy in individual offices with walls to the ceilings and doors. Employees with different jobs may perceive privacy differently and the type of jobs may create different needs for privacy. Even though open plan work environments currently remain the predominant design approach, health service managers who have control over sanctioning such designs must take into account the impact these designs have on their employees.

Due to the complexity that arises when building healthcare facilities, the need for liaison with other professionals becomes more important. A multidisciplinary approach is vital when decisions are made rather than using a unidisciplinary approach in relation to workplace designs. This advocates closer cooperation between building designers, health professionals, organisational behavioural researchers, and other professionals. Health service managers need to ensure that they have a better understanding of both the positive and negative aspects of an open plan work environment as shown in Table 1 before they undertake such workplace design.

Table 1: Open plan workplace – managerial considerations

POSITIVE ASPECTS	NEGATIVE ASPECTS
Cost-effective design	High level of noise
Equal work space for employees	Loss of concentration
Enhanced communication	Low work productivity
Increased collaboration	Issues with privacy
Flexibility to work in different areas	Lack of status
Accommodates more employees	Feeling of insecurity
Energy efficient heating and cooling design	Job dissatisfaction
	More chances of workplace conflict
	Prone to stress, acquiring flu, physical exhaustion, musculoskeletal problems, fatigue and increased blood pressure levels
	High staff turnover

Conclusion

Managers need to pay more attention to the complex systems that take place in the work environment. This involves understanding the association that occurs between employees and their physical environment. If managers fail to address the psychological dimensions when planning and developing healthcare facilities, complex issues like low job satisfaction and decreased work productivity will arise. Moreover, a workplace has to be a place where employees are satisfied when carrying out their work. Strategic planning for the office of the future will involve better knowledge of how people interact with their environment, the type of work that they do, the technology they use to do it, their social communication patterns and the organisation within which they work. Therefore, workplace design solutions responding to this change could become more dynamic than ever before.

Competing Interests

The authors declare that they have no competing interests.

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