

The Impact of Personal Control over Office Workspace on Environmental Satisfaction and Performance

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Abstract

The purpose of this paper is to provide a review of the background information regarding to personal control over the physical aspects of the workspace and the impact of that on individual satisfaction with work environment and performance. Today's work environment considerably vastly different to what it was several centuries ago; man-made objects dominate the physical surroundings. In today's workplace development the tendency to move from private offices to open layout is increasing which is affect the ability of control ambient conditions in workspace such as lighting, room temperature, privacy and so on. This situation may affect employees' reaction, behaviour and outcome. In fact while individuals are working in open layout workspaces the distractions from uncontrollable ambient conditions happen again and again which reduce their satisfaction with work environment and overall work outcome. It is therefore important to emphasize the significance of personal control over the environmental features and the effect of that on individual's environmental satisfaction and performance based on the conflict results in the literature. Consequently, the outcome of reviewing literatures will contribute to understand that part of existing knowledge of ergonomics and designing workplaces could be applied to promote individuals outcomes by focusing more on their office design and they ability to control their workspace and environmental satisfaction.

Keywords

Control, Physical Aspects, Open-plan Office, Workspace, Satisfaction with Work Environment, Performance

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1. Introduction

Work plays an impressive role in people's lives. People have to work in physical environments which influence their ability and their propensity to work every day. The majority of them spend at least a third or 50% of their time within an indoor physical environment that affects their thoughts, emotions and actions. Thus, a poor workplace arrangement or design has the potential to influence and impairment an individual's health, comfort and well-being. Studies in social and environmental psychology have established that the quality of the physical environment have a critical effect and consequence on people's attitude and performance (Heerwagen, 1998; Lee and Brand, 2005; MacMillan, 2012).

In designing workspaces open layouts are one of the most popular office designs in today's industries. According to Hedge (1982) there are two basic reasons behind the popularity and leaning to the usage or development of open-plan offices; one is financial reason and the other one is to add open-plan solution. In the case of financial open-plan offices provide more flexibility to organizations in structure and engage less space for each occupant; consequently they reduce the cost of real estate. Many employees can place and work in a giant space, so the place can be used more effectively. The notion of adding open-plan solutions refers to promote knowledge sharing, support teamwork and creativity (Brennan *et al.*, 2002; Hua, 2007).

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Regarding to previous studies there are some component in physical work environment which may influence users' outcome in terms of productivity and creativity. These aspects include office design and arrangements, ergonomics, indoor and physical features like noise, indoor air quality, plants, lighting, and the view through windows (McCoy and Evans, 2002; Ceylan *et al.*, 2008; Dul and Ceylan, 2011). However these environmental features are mostly controllable in private rooms and while they come to open-plan offices most of the time employees are not able to control them.

Having control over the workspace in open-plan office arrangements which mostly developed to enhance teamwork, communication and creativity seem very complicated and impossible most of the times. In this regard, in one hand some studies indicated that personal control over the work environment can make employees' feel good and satisfied and it benefits the organization by fostering better commitment and positive workplace behaviours (Lee, 2006; MacMillan, 2012). And on the other hand, some studies argue that controlling the environment will decrease the overall performance and productivity of individuals (Veitch and Gifford, 1996; Lee and Brand, 2005; Davis *et al.*, 2011). Therefore, based on conflate results in previous studies the role of individual control over the physical aspects of the work environment in open-plan offices to enhance employees' satisfaction with work environment and performance needs more literature and more attention.

The purpose of this paper is to provide an overview on the background information regarding to the importance of individual control over the physical aspects of the workspace and the impact of that on individual satisfaction with work environment and performance. In fact, the current standards and guidelines for indoor environments were mainly

developed without paying sufficient concentration in terms of open or modern offices. Therefore, this lack of attention may decrease employees' satisfaction with indoor environmental quality. Based on the results of prior studies satisfaction with the environment is considered as a key indication of performance and employees well-being (Sundstrom *et al.*, 1994; Veitch *et al.*, 2003; Van der Voordt, 2004; Veitch *et al.*, 2007; Yee *et al.*, 2008; MacMillan, 2012). Therefore, the result of this study will contribute to enhance the understanding of the impact of office design on individuals' environmental satisfaction and performance at work, and also the importance of individual control over the workspace by the focus of open-plan offices.

2. Personal Control Over the Workspace

The concept of personal control over the indoor environment has been developing rapidly since the 20th century and considerably changed people's lives. The notion of Indoor Environment Quality (IEQ) which is play a significant role in today's working or studying buildings has established by the National Institute for Occupational Safety and Health in the United States. The definition and conception of IEQ is very comprehensive. IEQ is mainly consists of the integrated psychological and physiological effects of indoor environmental quality as well as air quality, lighting quality, thermal comfort, and noise on occupants (Wong *et al.*, 2008; Cao *et al.*, 2012; Choi *et al.*, 2012). Indoor environment quality in public buildings such as office buildings and campus not only affects occupants' health and comfort; it also influences their productivity and creativity during work and study time (Cao *et al.*, 2012).

Table 1. Definition of control.

NO	Author	Definition of Control over environment
1	McLaney and Hurrell Jr (1988)	They proposed multidimensional measurement of work control, including task control, decision control, control over the physical environment and control of resources.
2	Paciuk (1990)	The researcher explains and divided control in two dimensions: Perceptions of thermal or heat control and exercised control. In her study the relationship between perceived control and exercised control were, because exercised control was operationally described as the relative frequency with which workers engaged in several and different types of thermally related behaviours to recover thermal comfort when required. However, sensed control was considered using ratings of thermal comfort rather than direct control in the experimental environment.
4	Veitch and Gifford (1996)	They measured control in terms of lighting control, environmental control and session or gathering control.
5	Huang <i>et al.</i> (2004)	They measure and considered control over the physical environment as adjustability and layout flexibility and suggested that personal control over the physical environment refers to the level of adaptability or adjustability and layout flexibility.
6	Greenberger (2013)	They explained that in the case of built environment people can experience and improve their control over the environment by changing, transforming or modifying it in some ways. This means people can achieve perceived control through personalization of individual work places, changing the exterior or interior of a building.

Having control over the work environment refers to the ability of that individual, groups or business units need to adopt and adjust to the quality of their work environment to improve their work and business effectiveness. In definition of control over the work environment previous studies have some suggestions and explanations. Some studies defined control as the ability to personalize ones’ workspace and other studies defined the word work control which includes task control, decision control, control over the physical environment and control of resources to cover all sections. Table (1) summarise some defections of control over the work environment.

3. Physical Work Environment Satisfaction (PWES)

Physical work environment satisfaction refers to the level of

satisfaction or happiness within the physical working environment which employees are considered. In fact, physical environment is one of the important features within an organization which aims to enhance employees’ effectiveness at work. In work environment the role of satisfaction is like a main symbol for effecting performance. Therefore one of the critical factors in the success of an organization is known as users’ environmental satisfaction. Likewise, it is often believed that employees who are more satisfied with the physical work environment are more likely to do better work and achieve better outcomes (Van der Voordt, 2004; MacMillan, 2012). Table 2 summarises some studies which investigated the role of satisfaction with work environment regarding to satisfaction with indoor environmental features.

Table 2. Summary of studies investigating occupants’ environmental satisfaction based on environmental control and satisfaction with indoor environment at workstation.

Study	Population	Data analysis	Results
O'Neill (1994)	541 managerial and non-managerial workers in 14 office buildings located across the United State (RR unknown)	Multiple regression analyses	The result of the study indicated that adjustability and storage contribute directly to individuals’ satisfaction with environment and performance, and indirectly to these two outcomes through mediating perception of the psychosocial environment (including privacy, communication, and distraction).
Veitch <i>et al.</i> (2003)	A total of 779 occupants of the nine buildings participated in the investigation, Canada and United State	Hierarchical multiple regression analyses	The result of the study indicated that occupants’ satisfaction is affected by the physical environment of the workstation in several ways. Satisfactions with lighting and ventilation have the most considerable effects compared to other aspects. Also, the result showed that satisfaction with privacy, environmental satisfaction, and job satisfaction had the lowest effects.
Huang <i>et al.</i> (2004)	Data were collected from 89 knowledge workers from two US companies	Multiple regression analyses	This study was a quasi-experimental study the result of the study showed that the office ergonomics training program considerably enhanced workers’ self-reported perceptions of environmental control, satisfaction with the work environment, and the degree to which the environment supported communication with co-workers.
Humphreys (2005)	4655 responses in 26 office buildings in 5 European countries (RR unknown)	Multiple linear regression	The result of the study suggested that generally in workplace environmental satisfaction with aspects as well as warmth, air quality, air movement, noise, humidity and light are influenced comfort.
Lee (2006)	409 office workers responded the questionnaire for the study, Michigan, USA	Linear regression analysis	The questionnaire designed for the study was based on the propositions of SERVQUAL. The result of the study indicated that Satisfaction with the workplace was positively associated with job satisfaction. Result also suggested that physical environmental status below expectation levels leads to dissatisfaction, but exceeding expectation levels does not increase satisfaction levels.
Veitch <i>et al.</i> (2007)	779 open-plan office occupants from 9 government and private sectors , in five large Canadian and US cities (RR~90%)	Exploratory and confirmatory factor analysis and structural equation modelling	The result shows that indoor environmental satisfaction in workspace is affected by satisfaction with noise, air quality and movement, , temperature, lighting, privacy, outside view, workspace size, and aesthetic appearance.
Bluyssen <i>et al.</i> (2011)	5732 occupants in 59 office buildings in 8 European countries (RR unknown)	Principal component analysis, Pearson correlation and linear regression	In general satisfaction was influenced by satisfaction with thermal, auditory and lighting, air quality, control over indoor environment, the amount of privacy as well as office design and layout, and cleanliness.

Study	Population	Data analysis	Results
Cao <i>et al.</i> (2012)	500 occupants in 5 buildings in Beijing and Shanghai (RR unknown)	Multivariate linear regression	The field of the study was conducted during 2008 and 2009 in Beijing and Shanghai. The result of the study showed that overall satisfaction is affected by satisfaction with indoor environmental features as well as satisfaction with thermal, acoustic and lighting environment and air quality.
Kim and de Dear (2013)	A total of 42,764 samples collected in 303 office buildings (RR unknown)	Multiple regression analysis	In general, the level of satisfaction with workspace is higher for employees working in enclosed private offices. The result of the study showed that there is a significant difference between occupant groups in private offices and open-plan offices on their perception of privacy, acoustics and nearness.

As mentioned by previous studies satisfaction with work environment can lead to job satisfaction, therefore dissatisfaction with work environment can lead to low productivity and performance. According to Motivation-hygiene theory which is called two-factor theory as well environment in which an individual is working in is an important factor in avoiding dissatisfaction (Herzberg *et al.*, 1993). According to Herzberg (2005), in work state individuals are not pleased with the satisfaction of lower-order needs; such as minimum level of salary or not safe and unpleasant working conditions. Rather, they look for the satisfaction of higher-level of psychological needs those are related to their achievement, advancement, responsibility, and the nature of the work itself.

Based on the two-factor theory there are two important factors to make or maintain employees' satisfaction: 1) motivation factors that related to give positive satisfaction and feeling to motivate employees for performing better. It is possible through different aspects such as giving responsibilities at work, job itself, work achievement, and so on. 2) hygiene factors that required to make sure employees are not dissatisfied, these factors can include job-related factors as well as companies policies, supervisions, salary, working condition, and other unfavourable assessments which might lead to dissatisfaction. As suggested by Herzberg (2005) it is important for employers to maintain hygiene factors for employees in order to avoid unpleasantness at work and to promote equal treatment. Working in open-plan office rooms can make employees feeling uncomfortable and dissatisfaction happen because of many problems which addressed to these type of design, such as lack of privacy, too much noise, distraction, etc., In their study Oommen *et al.* (2008) use an example for emphasising and confirming this statement "in some healthcare organizations only the senior executive gets 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 (p.40)." Therefore it is possible to say that indoor environmental quality have an important role on occupants satisfaction with work environment, however having control over the work

environmental aspects also seems very critical for enhancing this satisfaction which is impossible most of the times in open-plan offices.

4. Open-Plan Office Design and Today's Industry

Based on the De Croon *et al.* (2005) the concept of office location refers to the place at which office workers perform their activities. Office workers may work in the conventional or traditional type of office, or they may work in the telework office at home. Office layout refers to the arrangement, design and type of boundaries within an office. Workplace openness and the distance between workstations are two features of workplace layout. Office use refers to the way in which workplaces are allocated to office workers. For instance, in some cases one single workstation may be given to one single office worker (fixed workplace), or in other situations one workstation may be allocated to a number of office workers (desk-sharing). Office concepts may also influence job resources. As mentioned by De Croon *et al.* (2005) each types of office design have its own effect on employees. For instance, desk-sharing may inspire communication among workers, teleworking may enhance autonomy over scheduling of work, an open office may lessen psychological privacy, and teleworking may reduce social support from co-workers.

Today, the most important function of the workplace environment is to be more supportive. The dynamic organizational changes and fast implementation and growth of technology are the main reasons for a workplace environment to be more supportive. All factors within a workspace such as innovative communication systems, technological improvements, e-market developments, virtual reality, and alternative or optional work models play a vital role in these rapid changes. Finding a way to improve organizational outcomes is always important and essential. Many organizations have increasingly turned to some version of teamwork to accommodate these fast changes. To make sure that the work environment supports these new working styles, flexible workplaces are often suggested (Becker,

2002). To meet and answer this required flexibility; open workspaces are often recommended, since they offer interpersonal access and open communication compared to completely enclosed private offices. All these changes in work and work environment are associated with employees' needs for collaboration with others at work, balancing privacy, and other work processes. The concepts of open-plan offices have been described as providing at least as a basic solution to many of these notable and current challenges. Moreover, Carnevale (1992) explained that the best and suitable design and arrangement of physical factors in work environment is totally dependent on the nature of the job and the work style of the users. This means that different kinds of work activities depend and require different types of support from the environment. For instance, in an R&D organization, communication and sharing among employees is required. So, reducing distance between individuals in this situation is essential for making communications easier. In fact, in open-plan offices communication and interaction among individuals is easier and more possible. Many creative and innovative base offices also adopt open-plan design as well because of the idea of open-plan solutions. Beside all advantages open-plan office have some disadvantages as well. In previous studies the most common and important problems of open-plan offices that suggested reducing the end-users' satisfaction and performance and increase the environmental stressor are as followed.

4.1. Noise

Noise is one of the most common problems that often related to open-plan offices. Results which come from laboratory tests have been confirmed that in noisy environments individuals perform worse (e.g., Leather *et al.*, 2003; Banbury and Berry, 2005; Roelofsen, 2008). Normally, there are two types of noise that are common and related to office environments. One of them is the continuous noise from technical sources, ventilation systems, and different machines. Because of the nature of these types of noises which is softer and has same rhythm therefore this sort of noise in normal levels does not disturb so much. Less continuous noise and noise that include more information such as others conversations and departure of other people or keyboard typing, and inconsistent noises from the ventilation system are more troublesome in open-plan offices (Sundstrom *et al.*, 1994; Rasila and Rothe, 2012). Moreover it is important to mention that these noise problems are not apparent as disturbing only in open-plan offices, it can happen in all kinds of offices even in private ones (Leather *et al.*, 2003; Banbury and Berry, 2005). Furthermore, noise can affect different people in different manner which depend on individual differences (e.g., age and gender) and also the type of tasks they are involving with (Lee and Brand, 2005;

Maher and Von Hippel, 2005; Rasila and Rothe, 2012). For instance, some tasks (not routine) are more complicated and they may need long-term concentration so it is difficult for individuals to perform in noisy environments (Banbury and Berry, 2005). Consequently, some individuals in some tasks can disturb by environmental noise, however it is not necessarily for other individuals to disturbed even in same condition. Over all, it may suggested by previous studies distracting noise may contribute to poor performance, stress, exhaustion, that lead to increase employees' cognitive workloads and inefficiency (Leather *et al.*, 2003; Pejtersen *et al.*, 2006; Smith-Jackson and Klein, 2009). As suggested by Banbury and Berry (2005) 99% of employees in open-plan offices (responders for their study) are report that various components of office noise especially telephone ringing and people talking have negative effect on their concentration. So having control over the work environment can reduce disturbed noise which comes from uncontrollable sources.

4.2. Density

Social density and spatial density are two types of density as suggested by Duval *et al.* (2002). Social density refers to the number of individuals occupying in the space and the spatial density refers to the size of the space or the amount of usable space per employee (Brennan *et al.*, 2002; Duval *et al.*, 2002). In one hand, there are some studies which suggested that increased density and closeness in workplace can leads to improved opportunities for friendship, facilitate interpersonal contact, communication, and information exchange, and environment and work satisfaction (Oldham and Rotchford, 1983; Sundstrom and Sundstrom, 1986; Maher and Von Hippel, 2005; Kim and de Dear, 2013). On the other hand many studies have made the opposite conclusion and suggested that environmental satisfaction may decrease in places with high social and spatial density because of lack of privacy, uncontrolled social contact (Sundstrom *et al.*, 1982a; Sundstrom *et al.*, 1982b; Baldry and Barnes, 2012; Jahncke, 2012).

In fact as mentioned by Kim and de Dear (2013) the amount of available space for individual is recognized as the most important predictor for workspace satisfaction. However, it is important to mention that density alone (both social and spatial) cannot affect environmental satisfaction; other factors such as privacy, distractions, and sense of crowding are important to deal with that (Oldham, 1988; Lee and Brand, 2010; El-Zeiny, 2012).

4.3. Privacy

Researches indicate that employees who are working in traditional and private office rooms had a great and higher level of job satisfaction compared to employees working in

open-plan office. Working in open-plan offices with movable partitions or no walls will limit visual and conversational privacy for individuals. This environment and working condition may lead to more social interaction, but at the same time it may lead to lack of privacy and social density problem. So, the importance of privacy and lack of that in open-plan offices have received lots of attention in environmental and psychological studies (Westin, 1968; Sundstrom *et al.*, 1980; Hedge, 1982; Marans and Spreckelmeyer, 1982; Sundstrom *et al.*, 1982a; Sundstrom *et al.*, 1982b; Chaboki *et al.*, 2012; Kim and de Dear, 2013). In this vein some studies suggested that lack of privacy can negatively affects environmental satisfaction (Sundstrom *et al.*, 1982a), and some studies did not find any correlation between perceived privacy and environmental satisfaction (Duvall-Early and Benedict, 1992).

There are two categorise for privacy one is visual privacy and the other one is acoustic privacy (Rasila and Rothe, 2012). Acoustic privacy is closely related to the noises of open-plan offices which already discussed. The problem which related to open-plan offices in acoustic level is its limits the confidential conversation (both in person and on the phone). And in visual part the lack of privacy refers to the fact that in open-plan offices individuals can see and being seen by others all the times which might lead to dissatisfaction.

4.4. Ambient Conditions

Ambient conditions within a workspace refers to lighting, noise, air quality, room temperature, furnishing, colours, etc., (Bitner, 1992; Veitch *et al.*, 2003) which compare to private offices have been measured to be inferior in open-plan offices (Hedge, 1982). In fact ambient conditions in open-plan offices are less desirable than in most of the private office or other types of offices (Pejtersen *et al.*, 2006). It is important as a company's manager to have the require knowledge of how the ambient conditions' of the work environment are perceived and understand by the organizations' employees. In fact, every condition is perceived differently by each employee; and each condition has its own importance and impact on employees' behaviour and satisfaction. However, most of the time dissatisfaction from one or more features of the workspace especially in open-plan offices (such as lighting or room temperature), effect the whole image of employees from the workplace, this situation is backed to the fact that the ambient conditions in work environment are perceived holistically (Bitner, 1992).

The main reason behind the less optimal conditions in open-plan offices may back to the lack of individual control over the environmental features or ambient conditions. Back to the nature of this type of office layout many people with different characteristics and needs must sit and work near to

each other, therefore in this situation changeable ambient conditions such as air temperature, lighting, and density, are fixed to a certain level without much opportunity to control or modify them. Moreover, many technical systems, as well as the HVAC are designed to use in private rooms not in open-plan workspaces, and even most of the existing buildings are frequently built to provide for private offices rather than open-plan layouts (Rasila and Rothe, 2012). In such situations the importance of having control over the work environment is highlighted.

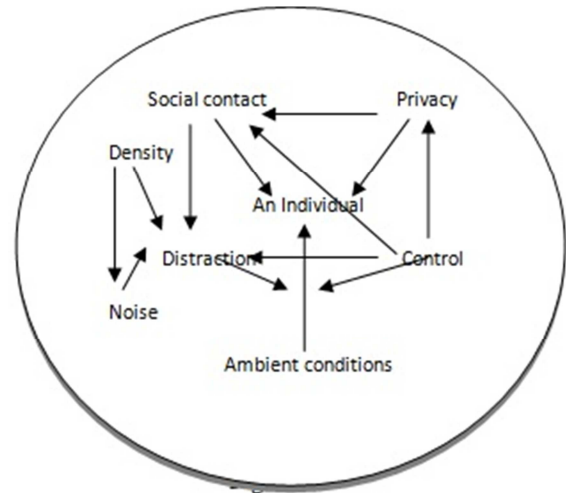


Figure 1. Social contact Privacy Density an Individual Distraction Control Noise Ambient conditions.

The findings of Rasila and Rothe (2012)'s study showed that the participant employees are acknowledged the environmental problems in their open-plan workspace, but they are still happy with their work and its environment. For instance, they accepted the fact of having uncontrollable noise in their workspace which may interrupt them sometimes, but they saw that as a signal of some activities. However all employees are not like that in fact the most important discussion about open-plan offices is to discuss about how they can be design and developed to be proper for different types of users, instead of discussing about whether open-plan offices are suitable environments for working or not. That is why focusing on the employees' perception of control over the work environment to discover their needs and wants seems essential. Open-plan office environment.

5. The Impact of Personal Control Over and Distraction from the Work Environment on Individual Satisfaction and Productivity

It seems very important and essential for organizations to

keep their employees satisfied with their work environment, because this satisfaction has been shown to be directly associated with employees' job satisfaction, fulfilment and indirectly affect turnover plan and commitment (Carlopio, 1996; Veitch *et al.*, 2007). Having control over the work environment especially in open-plan office environments seems to be very important and critical for employees' environmental satisfaction. There are various studies which emphasize the importance of office workers' ability to control their work environment and focus without any distractions in their workspace (Banbury and Berry, 2005; Roelofsen, 2008; Jahncke, 2012). Distraction as a negative feature of uncontrollable environment is expected to be negatively associated with individuals' satisfaction with the physical work environment (O'Neill, 2008) which can harm and decrease performance (Roelofsen, 2008). However personal control can also reduce and control the negative effect of distraction from the work environment, for instance, Donnerstein and Wilson (1976) cited in Lee and Brand (2010) proposed that perceived control can reduce the naturally experiential negative effects of noise in the workspace.

As mentioned before ambient features or physical conditions in office environments as well as noise, lighting, existence of windows, room temperature, etc., suggested to effect the end users or employees' work related behaviour, satisfaction, performance, and creativity (Sundstrom and Sundstrom, 1986; Oldham *et al.*, 1991; Roelofsen, 2002; Vischer, 2007; Lee and Guerin, 2009; Veitch, 2011; Baron, 2013; Collett and Furnham, 2013). According to the person-environment (P-E) fit theory, an individual's attitudes and behaviours result from the harmony between attributes of the person and the environment (Pervin, 1989; Cable and Edwards, 2004). According to Kristof-Brown and Guay (2011) the definition of person-environment fit is back to the compatibility matched that happens between an individual and work environment features. The Models have always been a well-known and important topic in the field of industrial and organizational psychology. Based on the theory people have some basic needs and person-environment fit is the degree of match between a person and some characteristics of the work which assumed to provide or enhance positive outcomes, such as satisfaction, effectiveness, and overall well-being (Caplan, 1987; Edwards *et al.*, 1998; Edwards and Rothbard, 1999). In general, workers' productivity, safety, well-being and satisfaction at work will be influenced by how well they fit in to their physical work setting (MacMillan, 2012; Hwang and Kim, 2013).

In fact, employees' environmental satisfaction is considered as a key indicator of performance in a work environment, therefore it is known as a critical factor in the success of an organization. In this vein, the result of this review contribute

to understand that it is often supposed and believed that employees who are more satisfied with the physical work environment are more able to perform better work and achieve better outcomes. In fact when office employees can work in a great comfort and can control their environmental condition they are more satisfied with their work environment, so they will be more productive (Lomonaco and Miller, 1997). In the same vein other studies also have indicated that positive relationship between high level of environmental and work control and job satisfaction, work performance and psychological well-being (O'Neill, 2008; Lee and Guerin, 2009; Parker *et al.*, 2013). Beside as suggested by Lee and Brand (2005) only the availability of control in workspace is not enough to bring benefits to users. Exercising control to achieve ideal conditions is very important and essential as well. Therefore, for practicing this condition control should be easily available and understandable to effect considerable changes in conditions especially in open-plan office environment.

6. Conclusion

Normally, offices are the daily reality of work for the majority of the population in most societies. Office employees often spend more than 40 hours per week at their workstations; therefore, the office environment plays a significant role in the daily life of a large number of people. So, the question here is: How can a building influence its occupants' attributes and working behaviour such as ability, motivation, and performance? The answer is in a study by Heerwagen (1998): a building can positively affect one's ability by providing comfortable ambient conditions, or by enabling the individual to control and adjust environmental features and conditions, and also by reducing health and safety risks. A building can also negatively affect an individual's attributes through uncomfortable, distracting, and dangerous environments. So, a building (or physical environment) can provide a situation to encourage and enhance positive and effective performance, personal control, and psychological engagement.

The result of this review indicated the importance of the effect of physical environment of workplace on people's well-being, satisfaction and performance. In fact the physical environment of workspace can affect employees' information channels, interpersonal interactions, and the availability of knowledge and equipment. Furthermore, it can influence individuals' (or group) ability to arrange and control their situation for continuity and coherence with the whole organization, so physical space in work environment can contribute to people and organizations' competitive advantages. Thus, promoting individuals'

satisfaction and performance is possible due to paying more attention to designing the workplace and facilitating the work environment to have more control over their workspace (Samani, Rasid, & bt Sofian, 2015).

In fact, the main objective of designing building systems is to provide and support environmental control, flexibility, facilities, interaction and communication, safety and security, etc., among people occupying in. It is the inter-balance between details and components of the organization's building and services which determines if the value objectives are achieved. It is so important to always remember that, the most important and vital role within an organization belongs to people, not machines. People are the fundamental and essential component of the system, and this applies to management and the organization, and also to the interaction between them and their total work environment. So that is why study in the area of improving work environment and valuing people in there is important and focusable. As also suggested by previous studies different people with different personality and job, and position have different reaction to environmental in terms of control and distractions. For instance, according to Block and Stock (1989) cited in Rasila and Rothe (2012) young people or juniors compare to senior ones are less bother by distraction of environment. Therefore, individual differences such as age and gender possibly affect people perception of control over and distraction from the environment. Future studies need to consider the role of age and gender in relation to control over and distraction from the work environment.

As managers should know, the quality of environmental features (e.g., lighting, furniture, air quality, etc.) in work environment is significant, particularly when they are far from employees' accessibility. It is clear that individuals need to have the ability to control their work environment, which can motivate them to do their tasks better (increasing productivity, creativity, and morale). Creating a supportive and comfortable work environment can potentially improve the perception of well-being among individuals which lead to satisfaction. Moreover, the findings of this review have essential implications for companies' managers and also space designers to understand that employee's performance could possibly be developed if attention is given to both physical and social environment of the workplace. It is hoped that the result of this review contributes to understand that the existing knowledge of ergonomics in workplaces could be applied to promote employees' performance and satisfaction with work environment through reducing distraction from the workplace and enhance individual control over the physical work environment.

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