A Workplace to Support Creativity

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ABSTRACT

The purpose of this paper is to provide a review of the background information regarding to the role of workplace on affecting people's performance. In today's industry creativity has a very special and important place because of the dynamic organizational changes and rapid growth of technology. To support these new working styles and specifically, to support creativity within an organization, flexible workplaces are often suggested. Since open-plan office offers more flexibility when compared to completely closed and private ones, they are seen to have more capabilities and are highly valued in today's industry. So the result of this study will contribute towards enhancing the understanding of the effect office design to enhance employees' performance, especially in creative tasks.

Keywords: Workplace, Performance, Creativity, Open-Plan Office, Work Environment

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1. INTRODUCTION

A job can be divided into separate series of routine or repetitive tasks based on the job's standard and historical data which result in routine outcomes or creative one. Evidences have shown that a very large percentage of jobs (on some level) are fundamentally repetitive and routine (e.g., office works, accounting, etc.) (Betsch *et al*., 2001). However, beside the importance of routines within an organization, today's work environments are all about being creative and innovate. Therefore, today the most important function of the workplace environment is to be more supportive due to dynamic organizational changes and rapid growth of technology. All factors within a workspace, such as innovative communication systems, technological improvements, e-market developments, virtual reality, and alternative or optional work models, play an important role in supporting creativity within an organization. Moreover, to accommodate these fast changing technologies and supporting organisational creativity, many organizations have increa-

singly turned to some version of teamwork. So, to ensure that the work environment supports these new working styles, flexible workplaces are often suggested (Becker, 2002).

The concepts of open-plan offices have been described as providing at least a basic solution to many of these notable and current challenges. Thus, open workspaces are often recommended since they offer interpersonal access and open communication compared to completely enclosed private offices. Open-plan offices naturally reduce the environmental boundaries and individual privacy which have some advantages and some disadvantages. Few studies have suggested that this type of office design facilitates communication and collaboration among employees (as an advantage), especially among those team members placed in close proximity to one another (Lee and Brand, 2005; Lee and Guerin, 2009). Open and easy communication is an important and valuable reason behind the establishment of open-plan offices. Positive social climate and interactions within office environment enhances the level of creativity at work

(Amabile *et al.*, 1996; Miller, 2005); therefore, the majority of creative industries have applied this type of office design. On the contrary, other studies have suggested that open-plan workspaces do not facilitate social interaction and communication among co-workers (Birnholtz *et al.*, 2007; Brennan *et al.*, 2002; Kim and de Dear, 2013; Passero and Zannin, 2012) due to distractions caused by uncontrollable noise from co-workers talking or lack of privacy for confidential conversations (Brennan *et al.*, 2002). It has been suggested that in open-plan workspaces, employees frequently feel that their communication level has decreased because open condition prevents private and secret conversations among them and subsequently negatively affects their satisfaction with work environment. Therefore, there exists an opportunity to investigate whether there is any relationship between satisfaction with work environment and social interaction among individuals which influence individual creativity as well.

This study reviews the background information regarding to workplace design to support office performance. In today's industry, creativity has a very special and important place because of the dynamic organizational changes and rapid growth of technology. In fact, all factors within a workspace, such as innovative communication systems, technological improvements, e-market developments, virtual reality, and alternative or optional work models, play an important role. Moreover, many organizations have increasingly turned to some version of teamwork to accommodate these fast changing technologies. To ensure that the work environment supports these new working styles, flexible workplaces are often suggested (Becker, 2002). Since open-plan office offers more flexibility when compared to completely closed and private ones, they are seen to have more capabilities and are highly valued in today's industry. The result of this paper indicates that the work environment can be understood as a motivation domain with particular stimulus characteristics that enables and permits some behavioral patterns to take place while limiting others.

2. THE ROLE OF OFFICE DESIGN ON DOING TASKS

The concept of office location refers to the place in which office workers perform their activities while the concept of office design refers to the arrangement, design and type of boundaries within an office room (De Croon *et al.*, 2005). Office design offers different kinds of arrangements including traditional offices, private rooms and open-plan layouts. So, office workers may work in the conventional or traditional type of office or they may work in the telework office at home. As also mentioned by prior studies, the design and arrangement of the office may influence job resources and employees work related behavior (Ceylan *et al.*, 2008; Davis *et al.*,

2011; De Croon *et al.*, 2005; Hameed and Amjad, 2009). For instance, desk-sharing may inspire communication among workers while teleworking may enhance autonomy over scheduling of work. Open-plan offices have existed for many years and have progressively become the main arrangement of office space for a wide range of work activities. Initially, open-plan offices were designed in the 1950s, and in the early 1970s, they achieved their highest level of popularity, when many organizations changed their traditional design to these types of arrangements. Open offices have various different designs from the 'bullpen' to 'Bürolandschaft' (Hua *et al.*, 2011).

Open-plan offices design has been the object of many studies since the 1970s. Some studies have focused on the psychological consequence of open-plan office design and its ambient conditions. Other studies have investigated the effect of open design on users' satisfaction with work environment and job (Brennan *et al.*, 2002; Hwang and Kim, 2013; Kaarlela-Tuomaala *et al.*, 2009; O'Neill, 2008). For instance, some studies have measured the influence of environmental noise on individuals' satisfaction and performance (Jahncke *et al.*, 2011; Roelofsen, 2008; Sundstrom *et al.*, 1994). Other studies also have examined the direct relationships between physical variables in the work environment and occupants' behavior, comfort and satisfaction in both open-plan office design and traditional ones. Some examples include the level of luminance on glare evaluations (e.g., Katzev, 1992; Veitch and Gifford, 1996a; Hwang *et al.*, 2012), temperature on thermal comfort (e.g., Hedge *et al.*, 1992; Höppe and Martinac, 1998; Huizenga *et al.*, 2006; Pejtersen *et al.*, 2006), sound level on acoustic satisfaction in open-plan offices (e.g., Sundstrom *et al.*, 1994; Leather *et al.*, 2003; Banbury and Berry, 2005) and office ergonomic and furnishing (e.g., Hendrick, 1991; De Croon *et al.*, 2005; Dul and Neumann, 2009; Robertson *et al.*, 2009; Lockton *et al.*, 2010).

Basically, there are two fundamental reasons behind the tendency of developing and using open-plan workspaces. First, the financial reason relates to the idea that many employees can be placed in a giant space, so the workspace can be used more effectively and reduces the cost of real state. The second reason refers to the notion of adding open-plan solutions. Open plan offices increase communication among co-workers, promote knowledge sharing and creativity and support teamwork (Brennan *et al.*, 2002; Hua, 2007). In this regard, previous studies have indicated that open-plan offices improve communication among employees by increasing nearness (Hua, 2007; Hwang and Kim, 2013). In fact, improving communication among co-workers and individuals may enhance the level of knowledge sharing among them, which can promote the amount of creativity as well (Miller, 2005).

Despite their advantages and their being one of the most popular forms of office designs among group projects with routine tasks, and creative and innovative industries, open-plan offices have some disadvantages.

Compared to private offices, the amount of environmental distraction in open-plan offices is higher and greater, such as lack of privacy and excessive environmental noise. The environmental distraction as a negative feature of uncontrollable environment in open-plan offices is expected to be negatively associated with individuals' satisfaction with the physical work environment (O'Neill, 2008), which may decrease their performance (Veitch *et al.*, 2007; Roelofsen, 2008).

So, a more useful and functional question to consider in open-plan offices is to what extent workers are supported for their task performance or to what extent workers' ability to work is influenced by the work environment (Vischer, 2008). In fact, evidences that came from reviewing previous studies indicated that on the positive side, open-plan workstations facilitate open communication, which enables workers to exchange information faster, easier, and informally. On the negative side, open workstations can produce distractions, which prevent workers from concentrating on their tasks and can cause other problems too (Brennan *et al.*, 2002; Kaarlela-Tuomaala *et al.*, 2009). However, the popularity of such findings have not stopped employers' tendency towards favouring, supporting and using the open-plan workspaces. Open-plan offices are cheaper to build and more flexible to reconstruct than a standard or traditional private or cellular office layout, and they need less square feet than private offices.

3. WORKPLACE DESIGN TO SUPPORT CREATIVITY

The concept of creativity or innovative behavior refers to the process of creating new ideas, services, inventions, theories, and finding solutions for problems (Amabile *et al.*, 1996; Janssen, 2004; Kozbelt *et al.*, 2010; Woodman *et al.*, 1993). Individual creativity is the creation of new and potentially useful and valuable ideas for generating new products, services, systems, work methods, processes, solving problems, etc. Thus, creativity is identified as the ability to successfully produce new solutions to relevant problems. It can also be one of the basic sources of competitive advantage especially in fast changing environments (Duxbury, 2012). Creativity also has the ability to provide the stimulus for discovery's opportunities, and situation for creating new investments too. Since creativity is the first step in the process of innovation, it has a very special and critical role within organizations.

Previous studies in the field of creativity mentioned the role of the physical work environment in affecting creativity (McCoy and Evans, 2002; Oksanen and Ståhle, 2013; Vischer, 2007; Vithayathawornwong *et al.*, 2003). There are some factors in work environment that may have more effect on people's creativity; including office design and arrangements, ergonomics, indoor and physical features like noise, indoor air quality, plants, lighting,
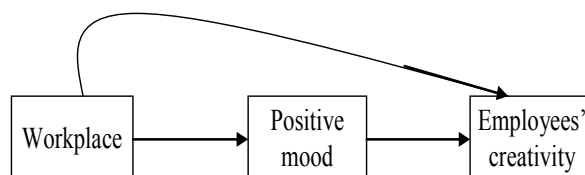

Figure 1. The direct and indirect impact of workplace on employees' creativity.

and the view through windows (Ceylan *et al.*, 2008; Dul and Ceylan, 2011; McCoy and Evans, 2002). Therefore, a poor workplace design and arrangement has the potential to affect an individual's health, comfort, and well-being and reduce their productivity and creativity. Previous studies also focused on assessments of physical elements of the workspace and how these elements affect occupants' (in terms of group or individuals) creativity (Al-Anzi, 2009; Martens, 2011). These studies indicated the direct or indirect effect of physical work on people's creativity through influencing their mood (Kristensen, 2004; McCoy and Evans, 2002) (Figure 1).

Prior studies in organizational behavior indicates that physical environment of the workplace influence employees' outcome (McGuire and McLaren, 2009; Oldham *et al.*, 1991; Vischer, 2007; Vithayathawornwong *et al.*, 2003). As suggested by psychological researches simple physical variables in workplace, such as noise, temperature, lighting and crowding, have a powerful role to determine and influence employees' mood (Harter *et al.*, 2003; Staw *et al.*, 1994). For instance, good-quality lighting in offices can affect employees' mood as well as satisfaction and performance (Veitch and Newsham, 1998). Fredrickson (2001) and Martin (2005) suggested that positive emotions at workplace may bring concerning tangible rewards, through its effects on relationships with others. Dul *et al.* (2011) summarized some features of the physical work environment that have more positive effect on creativity (Table 1).

Fredrickson (1998, 2001) in her broaden-and-build theory of positive emotion, suggested that positive emotions, such as joy and love, extend the available collection of cognitions and actions of a person. Positive emotions increase one's awareness and encourage novel, different, and exploratory actions and thoughts. Fredrickson (1998) also mentioned that the experience of particular positive emotions can motivate individuals to ignore automatic or routine (everyday) behavioral scripts (a series of expected behaviors for a given situation) and to follow new, creative, and often unscripted ways of thought and action. So, the theory supports the idea that a positive or happy person will have a better ability to be creative compared to an unhappy or negative person. Fredrickson (1998) demonstrated that positive emotions develop the attention scope (enhancing the number of available cognitive aspects for connection) and the scope of cognition (enhancing the broadness of those aspects

Table 1. Elements of the physical work environment that are possibly affect creativity

Element	Description	Example of empirical studies related to the element of creativity
Indoor plants and flowers	Nature plants or flowers that are placed in the work environment	Ceylan *et al.* (2008) Shibata and Suzuki (2002, 2004)
Calming colors	Colors that provide a relaxing mood (e.g., green, blue)	Ceylan *et al.* (2008)
Inspiring colors	Colors that provide an inspiring experience (e.g., yellow, orange, pink, red)	McCoy and Evans (2002)
Window view to nature	Having visual access from the workspace to the outside natural environment (e.g., plants or trees)	McCoy and Evans (2002)
Daylight	The amount of daylight coming from outside into the work environment	Ceylan *et al.* (2008)
Sound (positive sound)	Positive sounds (e.g., music, silence)	Stokols *et al.* (2002)

Source: Dul *et al.* (2011).

that are linked to the problem). These are similar aspects of mental activity which is consistent with the evolutionary theory and should result in greater variation and therefore increase the possibility of creativity (Amabile *et al.*, 2005; Fredrickson, 1998).

Based on the above mentioned evidence the physical environment of workplace can support or hinder individual performance. in this regard, in the field of creativity there are some studies that suggest that physical features of the work environment have strong effect on creativity while other studies suggested that the effect of physical aspects of the work environment are not stronger than other factors of the work environment. For instance, Amabile (1996) explained that physical workspaces which were designed to be motivating can promote the level of creativity; however, this effect is not stronger than other aspects of the work environment, such as social environment. In the same vein, Vithayathawornwong *et al.* (2003) also suggested that the effective and fundamental role of the physical environment to promote creativity within an organization is mainly mediated by the social-psychological work environment. Therefore, the creative behavior of employees is not only affected by physical work environment or social work environment but the whole work environment which is formed by the collaboration and interaction between the social-psychological work environment (SWE) and the physical work environment (PWE) influence ones creativity at workplace (Figure 2). Vithayathawornwong *et al.* (2003) suggested that for supporting creativity at work environment, the role of both SWE and PWE in terms of dynamism and freedom are important and essential. The SWE which is recommended by the literature can be summarized along an individual's interpersonal and organizational continuum. Factors that are grouped at the interpersonal level include relationships, trust, communication, knowledge or information sharing, group support, dynamism and interaction, and group composition and cohesiveness (Vithayathawornwong *et al.*, 2003).
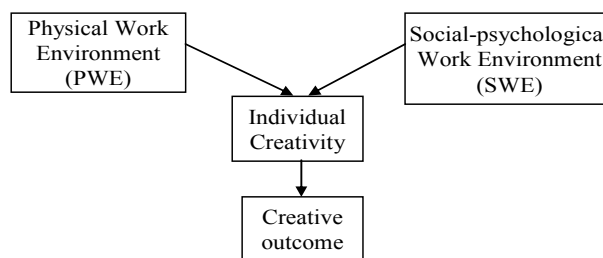

Figure 2. Shows the influence of social-psychological work environment (SWE) and the physical work environment (PWE) on individual creativity at workplace.

4. CONCLUSION AND DISCUSSION

Evidence obtained from previous studies indicates that office design and ambient conditions within the workplace affect employees' well-being, satisfaction, productivity, and performance (both in creative and routine tasks) (Carlopio and Gardner, 1992; Davis *et al.*, 2011; El-Zeiny, 2012; Kupritz and Hillsman, 2011; McCoy and Evans, 2005). As suggested by previous studies, within a work environment, the role of some factors is like a motivator which promotes employees' performance, especially in creative tasks (Al-Anzi, 2009; Martens, 2011; Shibata and Suzuki, 2002). So, it is possible to expect that workplaces which were designed to promote performance will also promote well-being by enhancing satisfaction with work environment and job satisfaction and reduce employees' level of psychological stress and turnover (Shalley *et al.*, 2000).

As suggested by Sundstrom *et al.* (1980), there is a significant and positive relationship between the type of job and employees' preference of working in private or non-private workspaces. A non-private workspace may provide two advantages for employees involved with repetitive tasks with simple performance. First, since repetitive tasks become boring jobs over time, beginning in non-private workspace can be a source of stimulation

due to connection with others. Second, in non-private workspaces employees who are involved with routine tasks may represent better performance (Nelson and Winter, 1982). Therefore, in a situation where tasks are highly routinized, the work can become boring and dissatisfying and the chances of making a mistake are more probable (Ohly *et al.*, 2006; Shalley and Gilson, 2004), so workplace can have a significant role in supporting this condition. Thus, open-plan offices can have a significant role in stimulating employees to have better performance, especially in repetitive tasks.

In the field of human factors and ergonomics, designing workspaces to promote employees performance, especially in creative tasks, is a new field. Generally, the purpose of human factors and ergonomics is to design work environments for human well-being and overall system performance. For instance, Larsen *et al.* (1998) and Shibata and Suzuki (2004) specified that using plants at work can enhance people's positive mood and creativity as well. The existence of other elements, such as color, texture, windows, etc., in the workplace may have comparable effects as well. For instance, the role of windows in the workplace is important not only because the natural light makes the place brighter, also because the outside viewing may create a positive mood (McCoy and Evans, 2002) and encourage employees performance, especially in creative task (Shibata and Suzuki, 2002). Besides the effect of physical environment of workplace on people's well-being, it can also affect their 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 (Kristensen, 2004; Schein, 1990). Thus, promoting individuals' performance both in creative tasks and routines is possible due to paying more attention to designing the workplace and facilitating the work environment.

Moreover, many managers who think only by relaying on equipments, tools and techniques can develop creativity and innovations within their organizations by stimulating their employees. However, employees who are placed in traditional productivity driven organizations with formal structures, limitation on time, strict and inflexible rule and systems, similar and routine daily tasks, standardized workplaces, and so on, may not be motivated to show the required creative behavior. In addition, people's creativity not only depends on their individual characteristics, in fact the amount of which a person generates new, useful, and valuable ideas depends on the support that is received from the work environment (Amabile, 1996). According to Amabile (1996), in general, space (workspace or any other places) means a lot to people's emotional well-being, which in turn is essential for their creative work. Finally, as mentioned

by prior studies, our knowledge is still limited on how the physical spaces actually enhance creativity (Kristensen, 2004; Martens, 2011; McCoy and Evans, 2002), which needs more attention and requires more studies.

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