

# **The Influence of Physical Work Environment on Hotel Back-of-the-House Employees' Satisfaction and Productivity: A Case Study on Hilton Hotels**

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## **ABSTRACT**

The workplace environment is the most critical factor in keeping an employee satisfied in today's business world. Today's workplace is different, diverse, and constantly changing. Therefore, physical environment affects how employees in an organization interact, perform tasks, and be lead. Physical environment as an aspect of the work environment has directly affected the human sense and subtly changed interpersonal interactions and thus productivity. Ambient features in office environments, such as lighting, temperature, existence of windows, free air movement suggest that these elements of the physical environment influence employees' attitude, behaviours, satisfaction, performance and productivity.

Therefore, the main purpose of this research is to study the two constructs and study the effect of physical work environment on employees' satisfaction and productivity in five-star hotels in Egypt, Hilton Hotels and Resorts. The target respondents of this study include back-of-the-house departments in Hilton hotels in Egypt as less care is given to them and more attention is given to front-of-the-house departments. A structured survey was distributed among twelve Hilton hotels in five main tourist areas; Cairo, Alexandria, South Sinai, Red Sea and Upper Egypt.

The results of this study provide important evidence of the impact of the physical work environment on employees' satisfaction and productivity. This study links the physical work environment such as sound, lighting, colour, temperature, workspace, design, layout of equipment and tools with employees' satisfaction and productivity. The findings also revealed that the most satisfied and most productive employees at Hilton Hotels in Egypt are those who have the highest level of convenient physical work environment.

**Key Words:** Physical Work Environment, Satisfaction, Productivity, Hilton

## **1 INTRODUCTION**

Many work environment studies have shown that workers are satisfied with reference to specific workspace features. These features are highly significant to their productivity and workspace satisfaction (Veitch, Charles, Newsham, Marquardt and Geerts, 2002 a; Humphries, 2005). They are lighting, ventilation rates, access to natural light and acoustic environment (Veitch et al. 2002).

Hence, productivity is defined as, the system's success in using resources to achieve their goals (Konrad and Mengel, 2000). An efficient physical office environment result in a number of benefits to the organization, since it affects how much satisfaction employees derive from their jobs, affects the impression individuals get out of the organization's work areas, provides effective allocation and use of the building's floor space, provides employees with efficient, productive work areas, facilitates the expansion and rearrangement of work areas when the need arises, and facilitates employees supervision (McCoy and Evans, 2005).

The workplace entails an environment in which the worker performs his work consequently; an effective workplace is an environment where results can be achieved as expected by management (Shikdar, 2004). Hotel workers have higher rates of occupational injury and illness compared to workers in the service sector at large in 2002, hotel workers had 6.7% occupational injuries and illnesses among full-time workers, compared to 4.6% in the service sector as a whole. Hotel workers also have higher rates for occupational injuries and illness resulting in lost workdays 1.8% vs. 1.3% in the service sector among full-time workers (Statistics, 2003), room cleaners are especially at elevated risk for musculoskeletal disorders (Bernhardt, 2003).

There are several factors that are being described by (Horrigan and Herz, 2003) towards the success of the employees' productivity. The factors are physical work environment, equipment, meaningful work, performance expectation, feedback on performance, reward for good or bad system, standard operating procedures, knowledge, skills and attitudes. McCoy and Evans (2005) stated that the elements of physical work environment need to be proper so that the employees would not be stressed while getting their job done. In their article, they also stated that the physical element plays an important role in developing the network and relationship at workplace. Companies regularly invest in technology and employees' development programs in the implicit belief that some of this investment will be translated into a competitive advantage. Similarly, the facility and workplace are an additional 'lever' that management can pull to enhance performance (Humphries, 2005).

The workplace environment is the most critical factor in keeping an employee satisfied in today's business world. Today's workplace is different, diverse, and constantly changing. Therefore, physical environment affects how employees in an organization interact, perform tasks, and are led. Physical environment as an aspect of the work environment has directly affected the human sense and subtly changed interpersonal interactions and thus productivity. This is because the characteristics of a room or a place of meeting for a group have consequences regarding productivity and satisfaction level (Ajala, 2012).

The physical environment at work is crucial to employees' productivity, satisfaction, social relations and health. An office is often referred to as a room or an area where people conduct clerical, professional or business activities. Offices can be either traditional that are enclosed with walls and occupied by one or a small number of people (also called enclosed or cellular offices), or open plan offices that lack interior walls and are occupied by a comparatively large number of people in a large, open space (Ahmed and Zulquernain, 2012).

The ultimate purpose of this study is to develop policies, processes, and practices concerning physical work environment to increase employees' satisfaction and productivity. *Therefore, the problem of the study can be formulated in the following questions: Does physical work environment affect employees' satisfaction and productivity?*

## **2 LITERATURE REVIEW**

### ***2.1 Physical work environment***

Work environment comprises the totality of forces, actions and other influential factors that are currently and/or potentially contending with the employees' activities and productivity. It shows the interrelationship that exists within the employees' in persons and their working environment (O'Neill, 2010).

The environmental comfort at a workplace can be physical, functional, and psychological. Physical comfort is related to basic human needs such as safety, hygiene, and accessibility, comfort combines such aspects of the physical work environment as appropriate lighting, ergonomic furniture and rooms designed for meetings and collaborative work (Leather, Zarola and Santos, 2010).

However, it is better to start with work environment in general (there are many studies on work environment) and then stress on physical work environment like as in the current study. The physical work environment will be examined well as to our knowledge. There are few studies that explained its importance in the field of hospitality industry (O'Neill, 2010).

Hence, there are many important factors in the work environment that should be considered such as noise, lighting, building color, temperature design, workplace layout, workstation set-up, furniture and equipment design, quality and space (Vischer, 2007).

As for **sound**, Sound can be regarded as noise or euphony that depends on the individual employee and also the employee's situation. Not all noise at a workplace can be regarded as unpleasant as well as euphonic to certain employees. Noise, on the other hand, is a psychological concept involving more than perception of sound loudness or sound intensity which is measured in decibels (Schlittmeier, Hellbruck, Thaden and Vorlander, 2008). Unfortunately, sound or noise problems in an office are

something that could not be avoided. When sound is turned off, errors in work are reduced and productivity increases (Bruce, 2008).

Noise is one of the leading causes of employees' distraction, leading to reduced productivity, serious inaccuracies, and increased job-related stress; workplace distractions cut employees' productivity by as much as 40%, and increase errors by 27 % (Dobrucki, zoltogorski, Pruchnicki and Bolejko, 2010).

To sum up, Noise in the work environment has a great influence on the employees' behaviour. Loud voice leads to employees' being tension, followed by dissatisfaction from the work environment. Consequently, it will lead to low productivity. Noise comes from some equipment such as heaters, hoods, ACs, printers and photocopiers. Ringing phones can be considered one of the main factors that affect the employees' performance, especially if more than one telephone exists in the same place (Amato, Rivas, Viana, Moreno, Bouso and Reche, 2014).

As for **lighting**, Humans are affected both psychologically and physiologically by the different spectrums provided by the various types of light. These effects are the less quantifiable and easily overlooked. The benefits of day lighting have been associated with improved mood, enhanced morale, lower fatigue, and reduced eyestrain. One of the important psychological aspects from day lighting is meeting the need for contact with the outside living environment (Winterbottom and Wilkins, 2009).

Lighting condition is very important; the total luminous environment usually varies with the type of lighting sources and location of the sources. Poorly designed and maintained lighting can result in glare and flicker that may cause vision problems (Pulay, 2010). Natural lighting is one of the most important sources of light that gives the employees the relief to see the sun shine. White lighting lamps are the best artificial lighting sources that give the employees the feeling of satisfaction (Hawes, Brunye, Mahoney, Sullivan and Aall, 2012).

Additionally, **Colour** is one of many ambient stressors or inherent aspects of the environment that place demands upon us to adapt or change. As an ambient stressor, colour may have the potential to affect an individual's functioning at nearly all levels: physiology, motivation, behavior, and cognitive and social interactions (Bleicher, 2005).

Colour may also be used to help people feel physically and emotionally more comfortable in their surroundings, and that it may even have the potential to enhance a person's mood and productivity within his work environment by inducing feelings of comfort, good will, arousal and overall favourable attitudes (Hill and Barton, 2005).

Some equipment is painted in certain colour as a coding device, such as fire equipment are red, danger areas are yellow, and first aid stations are green. The colour itself differs in its reflective properties. However, this claim has no empirical evidence and no validity. Colour is a visual phenomenon triggered by the response to the stimulation of light. It pervades every aspect of our lives, embellishes the ordinary and gives beauty and drama to everyday objects (Garris and Monroe, 2005).

Schloss and Palmer (2011) stated that colour influences not only the mood but also wellness and productivity. Colour has been suggested to increase productivity and performance, reduce accidents, and raise employees' morale and yet to play roles in the workplace by simply providing a more pleasant working environment and at the same time it can be an aid in safety practices.

Moreover, *temperature* of the workplace is greatly dependent on the work nature. If you work in a workshop, then the employees have the natural air. But if the employees work in an office, then the temperature depends on several factors. 35% of employees responded instantly that the lack of windows was their biggest difficulty with their office space. The specific reasons given for the dislike of the windowless offices were no daylight, poor ventilation, inability to know about the weather, inability to see out and have a view, feelings of being cooped up, feelings of isolation and claustrophobia, and feelings of depression and tension (Seppanen, 2006).

Berry, Bowen and Kjellstrom (2010) confirmed that temperature plays a significant role in workplace environment, especially how the human body tries to maintain an ideal temperature. A theory of effective temperature proposed four components; namely, air temperature, humidity, airflow and temperature of objects. However, temperature is also considered one of the most important factors of the work environment. The moderate temperature leads to an increase in productivity while high or low temperature leads to the discomfort of the employees and a decrease in productivity (Jaakola, 2012).

With reference to *work space, design and layout*, Vischer (2008) clarified that individuals have their own personal space when violated; lead them to feel crowded and uncomfortable. Thus, when infringements on personal space intrinsic to the open-plan design exceed employees' comfort levels, feelings of crowdedness and loss of privacy are likely to emerge. These feelings of crowdedness and loss of privacy then result in the dissatisfaction and negative reactions displayed by employees working in open plan workspaces. Keller (2008) argues that increasingly, an organization's physical layout is designed around employees' needs in order to maximize productivity and satisfaction. An organization's physical environment and its design and layout can affect employees' behaviour in the workplace.

Brown (2013) clarified that work space design and the spaces between equipment and furniture have a direct impact on the employees' satisfaction. The existence of many employees in a small space with office furniture and equipment leads to discomfort. Additionally, there is an advantage of the open space offices as they lead to the ease of information transformation among the employees and give the space for organizing offices and equipment relatively.

## ***2.2 Employee's satisfaction and productivity***

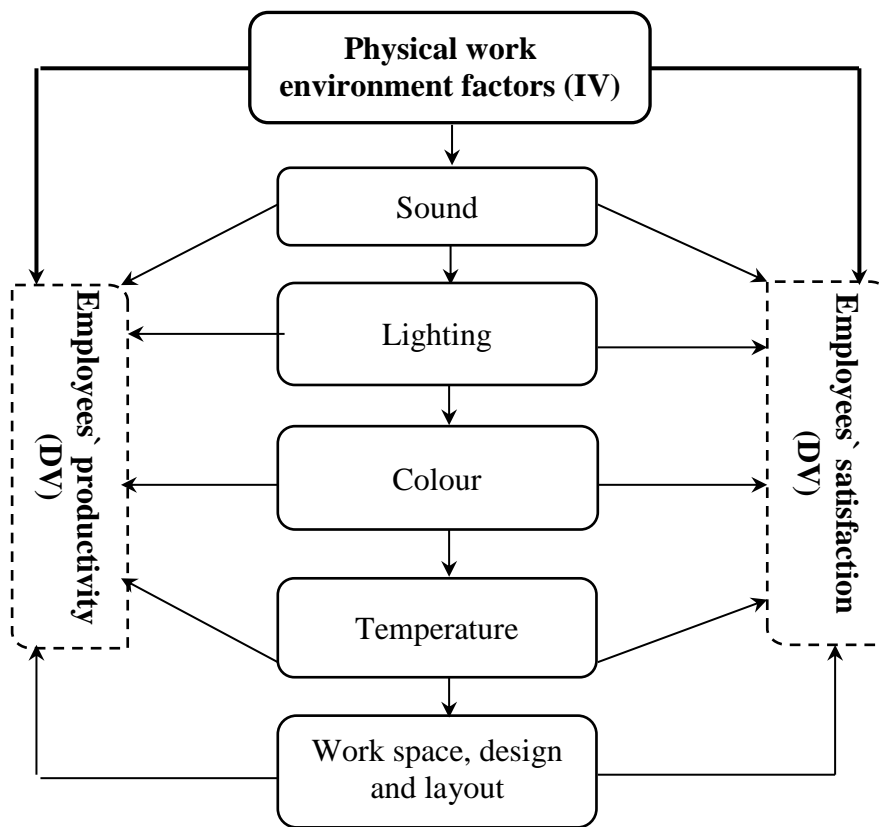
Employees' job satisfaction is directly associated with customer loyalty. Customer loyalty is unequivocally related to profitability. Therefore, maintaining quality employees would be the ideal method to sustain a solid reputation and build a repeat customer base (Christina and Dogan, 2009). Newsham, Brand, Donnelly, Veitch, Aries, and Charles (2009) declared that workers who are more comfortable with their work environments demonstrate more satisfaction with their jobs, but that satisfaction is differed by individual characteristics. Employees who experience job satisfaction are likely to be more productive and stay on the job. Job satisfaction is so important that its absence often leads to lethargy and reduced organizational commitment (Sitzman and Leiss, 2009).

According to McGuire and McLarin (2009) job satisfaction is often determined by how well the outcome meet or exceed expectations and it represents several related attitudes such as work itself, pay, promotion opportunities, supervision and coworkers which are most important characteristics of a job to which people have effective response.

Dissatisfied employees are more likely to quit their jobs or be absent than satisfied employees (Giannikis and Mihail, 2011). On other hand, Employees' satisfaction is extremely important in the work place as it influences an organization's success and performance by improving morale. This, in turn, reduces staff turnover (Thompson and Phua, 2012).

The interior design of the workspace affects directly the distribution of the offices and equipment that leads to the employees' satisfaction. This also affect the absent days count and positively leads employees to stay stable at their work positions without resignation due to their job satisfaction and hence their productivity will increase (Ruchi and Surindr, 2014).

Employees' productivity and their satisfaction from their work environment are positively related. The higher the employees' satisfaction is, the more productive they will be. Equipment organization, proper lighting, cheerful colors and proper temperature level are all essential factors that improve productivity (Edmans, Alex, Lucius, and Chendi, 2014).



IV= Independent variable

DV= Dependent variable

Figure 1. The conceptual model of research

The workers indicated that freedom from auditory distractions was the most important feature to efficiently and effectively accomplish their work tasks. Eighty percent of workers believed that they would be more productive if their workspace provided more acoustical privacy and if 25 percent of the noise was reduced. This will increase the perceived quality of the work environment and reduce stress by 27 percent and consequently form a 20 percent increase in productivity (Smith, 2011).

Office environment can be described in terms of physical and behavioural components. These components can further be divided in the form of different independent variables an organization's physical environment, its design and layout can affect employees' behaviour in the workplace (Savin, 2013). Stress, whilst being a psychological condition can, if prolonged, cause physiological effects, which include headaches and nausea and, in the long-term conditions such as diabetes and elevated blood pressure, all of which can lead to loss of productivity and absenteeism (Aisha, Hardjomidjojo and Yassierli, 2013).

To sum up, employees' productivity is the main concern of any organization that should be focused on. Through employees' productivity, the targets of organizations will be reached and hence their success will show off among their competitors or sister organizations. One of the targets to measure the success of any organization is the employees' productivity (Cerasoli, Nicklin and Ford, 2014).

Bases on the above mentioned, the hypotheses can be stated as the following (*figure 1*);

The following research hypotheses will be tested:

- *H1: There is a positive relationship between the physical work environment and employees' satisfaction.*
- *H2: There is a positive relationship between the physical work environment and employees' productivity.*

### **3. METHOD**

#### ***3.1.1 Nature of the study***

The overall objective of this study is to examine the importance of physical work environment and its effect on employees' satisfaction and productivity in the hospitality industry in Hilton hotels in Egypt. So, this study can be classified as a case study research. The reason behind choosing case study is that it is the method that enables the researcher to closely examine the data within a specific context. In most cases, a case study method selects a small geographical area or a very limited number of individuals as the subjects of study (Yin, 2013).

Another reason for the recognition of case study as a research method is that researchers were becoming more concerned about the limitations of quantitative methods in providing holistic and in-depth explanations of the social and behavioural problems in question. Through case study methods, a researcher is able to go beyond the quantitative statistical results and understand the behavioural conditions through the actor's perspective (Baskarada, 2014).

### **3.2 Data collection**

The target respondents of this study included back-of-the-house departments in Hilton hotels in Egypt as less care is given to them and more attention is given to the front of house departments. Additionally, those back-of-the-house departments have most of the work pressure in hotel operations.

The study is conducted on back-of-the-house staff (Kitchen, Stewarding, Engineering, Housekeeping, Laundry and management offices).

The sample of the current study was assembled in such a way as to be a representative of the population from which it was taken (Jennings, 2001). Increasing the size increases the sampling likely precision of a sample; this means that, as the sample size increases, the sampling error decreases. In addition, Gay and Diehl (1992) stated that the minimum acceptable sample size of the descriptive study is (10%).

The survey is distributed among twelve Hilton hotels, in five main tourist areas; Cairo, Alexandria, South Sinai, Red Sea and Upper Egypt. The total number of Hilton Hotels in Egypt is 4960 employees. The researcher has chosen seven employees from the following departments; Kitchen, Stewarding, Engineering, Housekeeping, Laundry and management offices. SO, 42-survey is distributed to each hotel, representing a total number of 504 survey in all Hilton hotels in Egypt. All survey returned back with a response rate 100% because all surveys was distributed by the human resources manager in one branch of Hilton hotels.

### **3.3 Survey Development**

A structured survey directed to hotel employees is distributed in order to collect the required information about physical environment and employees' satisfaction and productivity. At the primary stage of the survey development, an extensive literature review was performed to gather questions relevant to the variables selected in the study framework to ensure all relevant issues are included in the survey. The basic procedures employed in developing the scale for measuring the perception of physical work environment in Hilton hotels for the purposes of this study followed the procedures recommended by (Norman, 2010). Four main steps were taken in developing the instrument. **The first step** was to identify and generate the required study variables in order to test the study variables outlined earlier. It was accomplished through a review of physical environment and employees' satisfaction and productivity used in previous studies, such as sound, lighting, colour, temperature, and workspace, design and layout. **The second step** was the item generation stage. The ultimate purpose of the item generation stage was to ensure that survey items have content validity and that they capture the specific domain of interest yet contain no extraneous content (Carifio, 2007). A clear linkage to the theoretical literature was considered in this stage through beginning with a strong theoretical framework and employing a rigorous sorting process that matches items to construct definitions. The survey included a cover letter on the first page, which describes the purpose of the study, and a request for their participation in the study. The questions were formulated to answer the study hypotheses. Employees' were asked to rate items on an ordinal scale of 1-5. Part one of the survey was concerned with general information. Part two of the survey was concerned with gathering the required data for physical work conditions. Part three of the survey was concerned with gathering the required data for employees' satisfaction. Employees were asked to what extent the work environment represented a vital role in their job satisfaction. Part four of the survey was concerned with gathering the required data concerning employees' productivity. **The third step** in the survey development was the pilot stage.



The first pre-test employed a sample of thirty management staff. The emphasis at this early stage was to enhance readability and clarity of the questions as well as to enhance the items' and emerging scales' content validity. Based on their comments, items were modified to improve both reliability and their parsimony by deleting troublesome and confusing items, respondents, and adding new items to support scales. **The fourth step** ensured that the survey instrument was modified on the basis of comments and suggestions made by the pre-test subjects. A Likert scale survey was developed for the purposes of this study to test the hypotheses. The study variables were measured on a 5-point Likert type scale.

#### 4. RESULTS AND DISCUSSION

##### 4.1 Reliability test

All values of Cronbach's alpha for constructs were considerably indicating that the reliability of all constructs used in this study was supported as shown in table 1. Cronbach's alpha was applied to measure reliability which ranged from 0.799 to 0.822. Total questionnaire Cronbach alpha was 0.806, and the reliability alpha for all studied items indicated a satisfactory level as they were well above the expected level of 0.70.

Table 1. Reliability and validity statistics for all study variables

| <i>Item</i>                          | <i>Cronbach's alpha</i> |
|--------------------------------------|-------------------------|
| <i>The physical work environment</i> | <i>0.815</i>            |
| <i>Employees` satisfaction</i>       | <i>0.822</i>            |
| <i>Employees` productivity</i>       | <i>0.799</i>            |
| <i>Total questionnaire</i>           | <i>0.806</i>            |

##### 4.2 Respondents` profiles and hotel characteristics

The respondents` profile is shown in table 2 which contains the different characteristics of the sample. It includes respondent age, department, gender, work experience and finally marital status.

Table 2. Respondents` profiles and hotel characteristics

| <i>Item</i>            | <i>Number<br/>“n=495”</i> | <i>Percent</i> |
|------------------------|---------------------------|----------------|
| <b>Age</b>             |                           |                |
| <i>Less than 25</i>    | 81                        | 16.4           |
| <i>25 to 35</i>        | 212                       | 42.8           |
| <i>36 to 45</i>        | 169                       | 34.1           |
| <i>46 to 55</i>        | 33                        | 6.7            |
| <i>56 to 60</i>        | 0                         | 0              |
| <b>Department</b>      |                           |                |
| <i>Offices</i>         | 76                        | 15.4           |
| <i>Engineering</i>     | 84                        | 17             |
| <i>Housekeeping</i>    | 84                        | 17             |
| <i>Kitchen</i>         | 84                        | 17             |
| <i>Laundry</i>         | 94                        | 19             |
| <i>Stewarding</i>      | 73                        | 14.6           |
| <b>Gender</b>          |                           |                |
| <i>Male</i>            | 385                       | 77.8           |
| <i>Female</i>          | 110                       | 22.2           |
| <b>Work Experience</b> |                           |                |
| <i>&lt; 1 year</i>     | 75                        | 15.2           |
| <i>1-5</i>             | 210                       | 42.4           |
| <i>5-10</i>            | 145                       | 29.3           |
| <i>10+</i>             | 65                        | 13.1           |
| <b>Marital Status</b>  |                           |                |
| <i>Single</i>          | 255                       | 51.5           |
| <i>Married</i>         | 230                       | 35.2           |
| <i>Divorced</i>        | 10                        | 13.3           |

### **4.3 Data analysis and discussion of physical work environment**

The main objective of this part is to illustrate results of employees' responses regarding the physical work environment components. Table 3 shows the frequency and percentage of responses.

Regarding the analysis of findings, it was shown that the general attitude for respondents to evaluate physical work environment was "agree" with a frequency of 248 with a percentage of 50.1% for equipment and tools followed by a frequency of 247 with a percentage of 49.9% for design and layout, followed by a frequency of 234 with a percentage of 47.3% for lighting, followed by a frequency of 223 with a percentage of 45.1% for color, followed by a frequency of 216 with a percentage of 43.6% for sound, and finally a frequency of 212 with a percentage of 42.8% for temperature.

The second attitude for respondents to evaluate physical work environment was "strongly agree" with a frequency of 138 with a percentage of 27.9 % for colour, followed by a frequency of 121 with a percentage of 24.4% for temperature, followed by a frequency of 117 with a percentage of 23.6% for equipment and tools, followed by a frequency of 115 with a percentage of 23.2% for lighting, followed by a frequency of 112 with a percentage of 22.7% for sound, and finally a frequency of 81 with a percentage of 16.4 % for design and layout.

The third attitude for respondents to evaluate physical work environment was partially agree with a frequency of 165 with a percentage of 33.3 % for design and layout, followed by a frequency of 118 with a percentage of 23.8% for sound, followed by a frequency of 113 with a percentage of 22.8% for temperature, followed by a frequency of 104 with a percentage of 21.0% for lighting, followed by a frequency of 96 with a percentage of 19.4% for equipment, tools, and finally a frequency of 91 with a percentage of 18.4 % for colour.

The fourth attitude for respondents to evaluate physical work environment was "disagree" with a frequency of 41 with a percentage of 8.3 % for temperature, followed by a frequency of 38 with a percentage of 7.7% for sound, followed by a frequency of 31 with a percentage of 6.3% for equipment and tools, followed by a frequency of 29 with a percentage of 5.9% for colour, followed by a frequency of 26 with a percentage of 5.3% for lighting, and finally the frequency of 1 with a percentage 0.2 % for design and layout.

The final attitude for respondents to evaluate physical work environment was "strongly disagree" with a frequency of 16 with a percentage of 3.2 % for lighting, followed by a frequency of 14 with a percentage of 2.8% for colour, followed by a frequency of 11 with a percentage of 2.2% for sound, followed by a frequency of 8 with a percentage of 1.6% for temperature, followed by a frequency of 3 with a percentage of 0.6% for equipment and tools, and finally a frequency of 1 with a percentage of 0.2 % for design and layout.

The results showed that, the most of employees are agreed with the important of the physical work environment factors such as sound, lighting, colour, temperature, workspace design and layout.

After evaluating these answers also, we can have assured that the most of Hilton hotels are followed the same standard and they give a big attention for physical work environment and by evaluating this answer we also found that this answer are rational because the average of the answers (strongly agree, agree and partially agree) was about 470 frequencies.

table 4.3 physical work environment components

| Statement<br>Scale       | Sound     |         | lighting  |         | Color     |         | Temperature |         | Work space,<br>design and<br>layout |         | Equipment and<br>tools |         |
|--------------------------|-----------|---------|-----------|---------|-----------|---------|-------------|---------|-------------------------------------|---------|------------------------|---------|
|                          | Frequency | Percent | Frequency | Percent | Frequency | Percent | Frequency   | Percent | Frequency                           | Percent | Frequency              | Percent |
| <b>Strongly Disagree</b> | 11        | 2.2     | 16        | 3.2     | 14        | 2.8     | 8           | 1.6     | 1                                   | 0.2     | 3                      | 0.6     |
| <b>Disagree</b>          | 38        | 7.7     | 26        | 5.3     | 29        | 5.9     | 41          | 8.3     | 1                                   | 0.2     | 31                     | 6.3     |
| <b>Partially Agree</b>   | 118       | 23.8    | 104       | 21.0    | 91        | 18.4    | 113         | 22.8    | 165                                 | 33.3    | 96                     | 19.4    |
| <b>Agree</b>             | 216       | 43.6    | 234       | 47.3    | 223       | 45.1    | 212         | 42.8    | 247                                 | 49.9    | 248                    | 50.1    |
| <b>Strongly Agree</b>    | 112       | 22.7    | 115       | 23.2    | 138       | 27.9    | 121         | 24.4    | 81                                  | 16.4    | 117                    | 23.6    |
| <b>Total</b>             | 495       | 100     | 495       | 100     | 495       | 100     | 495         | 100     | 495                                 | 100     | 495                    | 100     |

In addition, these results match with the previous result of Ansiau and other they said that, the physical environment of work affects both job performance and job satisfaction. The employee who experiences discomfort in the work environment will be more stressed. This relates to mismatch or misfit between the demands of the situation and the resources the individual has, environmental comfort as an opposite to misfit (Ansiau, Wild, and Marquie, 2008).

On the other hand, the employees reported that working conditions changed over the last two years the majority of the respondents with the answer "no change happened" represented (98.5%), followed by the respondents were replacing the damaged equipment. In addition, this means there is a strong system to avoid any problem and there is a strong maintenance schedule.

Otherwise, the majority of the respondents with no injury represented (98 %), followed by the respondents with injury represented (2%). The answer was divided between two departments the first one is stewarding department with the percentage of (1.5%), the second one was housekeeping department, and the percentage was (5%). Which means also the hotels follows strong industrial safety procedures. In addition, this result is inconsistent with (Bernhardt, 2003). Who said that, Hotel workers have higher rates of occupational injury and illness compared to workers in the service sector at large in 2002, hotel workers had 6.7% occupational injuries and illnesses among full-time workers, compared to 4.6% in the service sector as a whole. Hotel workers also have higher rates for occupational injuries and illness resulting in lost workdays 1.8% vs. 1.3% in the service sector among full-time workers (Horrihan and Herz, 2003). room cleaners are especially at elevated risk for musculoskeletal disorders (Bernhardt, 2003).

Finally, regarding the company's safety meetings all the respondents answered, "Very useful, an opportunity to learn new information and give input" and the percentage was (100 %). Which assured all the previous results.

#### *4.4 Data analysis and discussion of employees' satisfaction*

The objective of this part was to illustrate the result of employees' responses regarding satisfaction. 44.8 % of the employees showed that they are somewhat satisfied with their physical work environment elements and this percentage represents 222 employees, followed by 29.3% of the employees are extremely satisfied and this percentage represents 145 employees, followed by 18% of employees are neutral and this percentage represents 89 employees, followed by 7.9% of employees are extremely dissatisfied and this percentage represents 39 employees and finally 0.0% of employees are very dissatisfied.

After evaluating these answers also, we have assured that the most of Hilton hotels are followed the same standard, they give a big attention for employee satisfaction, and by evaluating these results we found that the results are rational because the average of the answers (neutral, somewhat satisfied, extremely satisfied) was 456 frequencies with percentage of 92.1%.

**For examining hypothesis H1**, there is a positive relationship between the physical work environment and employees' satisfaction.

In order to determine the relationships among study variables, the correlation coefficient was interpreted in terms of its statistical significance to p-values (probabilities of relationships). When the p-value is ( $< 0.05$ ), a significance variance exists, as if the p-value gets close to 0 the significance variance becomes stronger, but when the p-value is ( $> 0.05$ ) this means that no significance variances exist (Gall and Borg. 2003). So, each hypothesis may be supported or not supported according to the overall significance of the variables in general.

By evaluating physical work environment components (sound, lighting, colour, temperature, workspace, design and layout, equipment and tools) the result will be as follows:

First, regarding sound there is a positive relationship between the sound and employees' satisfaction. In addition to what's shown in table 4.5, there is a significant correlation between the two variables based on a

record of 0.661 P=.001 that makes *the first hypothesis (H1) is accepted*. Which is agreed with another publisher and they said that. Unfortunately, sound or noise problems in an office are something that could not be avoided. When sound is turned off, errors in work are reduced and productivity increases. (Bruce, 2008) identified noise as an ambient stressor relating to job satisfaction in the work environment.

In addition, noise from heating, ventilating, and air-conditioning (HVAC) systems is typically a major source of background noise in buildings. In offices HVAC noise can potentially cause annoyance and concentration problems for workers, this has led many in the acoustics community to question how much noise distraction contributes to decreased productivity, and also if the effect changes over time (Tajik and Ghomri, 2009).

Second, regarding lighting, there is a positive relationship between lighting and employees' satisfaction. There is a significant correlation between the two variables based on a record of .426 P=.001 that makes *the first hypothesis (H1) is accepted*. In addition, these results are match with the previews literature review, which assured that, there is a positive relationship between the two variables.

Third, regarding colour, there is a positive relationship between color and employees' satisfaction. There is a significant correlation between the two variables based on a record of .653 P=.001 that makes *the first hypothesis (H1) is accepted*. Which led to there is no conflict between the research and the literature review which assured the hypothesis.

Fourth, regarding temperature, there is a positive relationship between temperature and employees' satisfaction. There is a significant correlation between the two variables based on a record of .639 P=.001 that makes *the first hypothesis (H1) is accepted*. Moreover, this will appear in the incoming opinions.

Fifth, regarding workspace, design and layout, there is a positive relationship between the workspace, design and layout and employees' satisfaction. There is a significant correlation between the two variables based on a record of .342 P=.001 that makes *the first hypothesis (H1) is accepted*. It has already been supported by the literature review, as (Vischer, 2008), individuals have their own personal space when violated; lead them to feel crowded and uncomfortable. Thus, when infringements on personal space intrinsic to the open-plan design exceed employees' comfort levels, feelings of crowdedness and loss of privacy are likely to emerge. These feelings of crowdedness and loss of privacy then result in the dissatisfaction and negative reactions displayed by employees working in open plan workspaces.

Sixth, regarding equipment and tools, there is a positive relationship between the equipment and tools and employees' satisfaction. There is a significant correlation between the two variables based on a record of .754 P=.001 that makes *the first hypothesis (H1) is accepted*. It has already been supported by the literature review, as (Bhatti, and Qureshi, 2007) Gaining the employees' satisfaction is a critical aspect of any organization. Once it is obtained, it can be an asset that can easily impact the productivity positively. The physical layout and equipment present in the working environment have strong effects on employees' satisfaction (Bhatti, and Qureshi, 2007). Job satisfaction has a relationship and that relationship is primarily focused on customer satisfaction, which is heavily emphasized in service-oriented business (Wright, Cropanzano and Bonett, 2007).

*Table 4. Correlation between physical work environment and employees' satisfaction*

|              | <b>(D.V) physical work environment</b> | <b>(I.V) Employees' satisfaction</b> |
|--------------|--|--------------------------------------|
| <b>Sound</b> | Pearson Correlation                    | .661**                               |

|                                      |                 |        |
|--------------------------------------|-----------------|--------|
|                                      | Sig. (2-tailed) | 0.001  |
| <b>Lighting</b>                      | Pearson         | .426** |
| <i>Pearson Correlation</i>           | Correlation     |        |
|                                      | Sig. (2-tailed) | 0.001  |
| <b>Color</b>                         | Pearson         | .653** |
| <i>Pearson Correlation</i>           | Correlation     |        |
|                                      | Sig. (2-tailed) | 0.001  |
| <b>Temperature.</b>                  | Pearson         | .639** |
|                                      | Correlation     |        |
|                                      | Sig. (2-tailed) | 0.001  |
| <b>Work space, design and layout</b> | Pearson         | .342** |
|                                      | Correlation     |        |
|                                      | Sig. (2-tailed) | 0.001  |
| <b>Equipment and tools</b>           | Pearson         | .754** |
|                                      | Correlation     |        |
|                                      | Sig. (2-tailed) | 0.001  |
|                                      | Pearson         | .605** |
|                                      | Correlation     |        |
| <b>Total score</b>                   | Sig. (2-tailed) | 0.001  |

#### 4.5. Data analysis and discussion of employees' productivity

The objective of this section is to discuss the results of employees' responses regarding productivity. Regarding the analysis of findings, it was shown that the general attitude for respondents to evaluate employees' productivity was high productivity with frequency of 261 with a percentage of 52.7%, followed by a frequency of 131 with a percentage of 26. % (too high productivity) followed by a frequency of 82 with a percentage of 16.6% (moderate). Followed by a frequency of 21 with a percentage of 4.2% (low productivity) and finally a frequency of 0 with a percentage of 0.0% (low productivity). The previous results shown that there is a strict standard, which lead employees to be more productive, and there is a tool which measure employees' productivity like productivity indicator report.

**For examining H2**, table 5 shows the correlation between physical work environment and employees' productivity.

Regarding the second hypothesis which aimed to test the impact of physical work environment on employees' productivity, it was also supported by the review of literature, as O'Neill (2010) stated that there is a significant positive impact of physical work environment on employees' productivity. Referring to table 5 it was noted that by evaluating physical work environment components (sound, lighting, colour, temperature, workspace, design and layout, equipment and tools) the results were as follows.

First, regarding sound, there is a positive relationship between the sound and employees' productivity. In addition, there is a significant correlation between the two variables based on a record of

.617  $P=.001$  that makes *the second hypothesis (H2) is accepted*. This result is in line with other authors and they said that: noise is the most disturbing factor of indoor environment in open offices (Haapakan, 2008). According to the model of Hongisto (2008) task performance reduces with increasing speech intelligibility. The room acoustic design of open offices should, therefore, aim at the reduction of speech intelligibility between workstations. This can be mainly achieved by three factors: increasing room absorption, increasing screen height and increasing masking sound level. The relationship between a telephone ringing and mental tasks, which would typically be undertaken in an office environment, is reciprocal in the sense that mental tasks are performed at a higher standard when the phone isn't ringing (Kaarlela, Helenius, Keskinen and Hongisto, 2009).

Second, regarding lighting, there is a positive relationship between lighting and employees' productivity. The results shown that, there is a significant correlation between the two variables based on a record of .369  $P=.001$  that makes *the second hypothesis (H2) is accepted*. In addition, these results are match with the previews literature review, which assured that, there is a positive relationship between the two variables. Lighting is the amount of light needed in the workplace. It depends mainly on the nature of the tasks being performed, either outdoor at the field or indoor in the building itself, or even in the day, or at night. Thus, it might increase or decrease the performance. Inadequate lighting is a source of distress, thus leading to poor job performance when the employees are exposed to uncomfortable working environment in which, there are too high glare, or dim bulk, or a lack of natural light in the office (Knisley, 2005).

Third, regarding colour, there is a positive relationship between colour and employees' productivity. The results shown that, there is a significant correlation between the two variables based on a record of .594  $P=.001$  that makes *the second hypothesis (H2) is accepted*. Which led to there is no conflict between the research and the literature review which assured the hypothesis. Blue office is ideal for someone who must focus and concentrate on numbers, green is a great choice for a management office as it has a balancing effect, and yellow is suitable for sales offices. Therefore, the colour scheme chosen for a workplace or an office must be made with proper consideration to produce better quality of work (Boss, 2006).

Fourth, regarding temperature, there is a positive relationship between temperature and employees' productivity. The results shown that, there is a significant correlation between the two variables based on a record of .594  $P=.001$  that makes *the second hypothesis (H2) is accepted*. Moreover, this will appear in the incoming opinions. Productivity decreases by 2% per each degree over 25°C and presented the link between a decrement in productivity and high indoor temperature. Heat can cause lethargy which not only increases the rate of accidents but can also seriously affect productivity (Gonzalez, Eiken and Mekjavic, 2008).



Table 5. Correlation between physical work environment and employees' productivity

| (D.V) physical work environment      | (I.V)<br>Employees'<br>productivity |
|--------------------------------------|-------------------------------------|
| <i>Sound</i>                         | Pearson Correlation<br>.61<br>7**   |
|                                      | Sig. (2-tailed)<br>0.0<br>01        |
| <i>Lighting</i>                      | Pearson Correlation<br>.36<br>9**   |
|                                      | Sig. (2-tailed)<br>0.0<br>01        |
| <i>Color</i>                         | Pearson Correlation<br>.59<br>4**   |
|                                      | Sig. (2-tailed)<br>0.0<br>01        |
| <i>Temp.</i>                         | Pearson Correlation<br>.59<br>4**   |
|                                      | Sig. (2-tailed)<br>0.0<br>01        |
| <i>Work space, design and layout</i> | Pearson Correlation<br>.29<br>5**   |
|                                      | Sig. (2-tailed)<br>0.0<br>01        |
| <i>Equipment and tools</i>           | Pearson Correlation<br>.67<br>6**   |
|                                      | Sig. (2-tailed)<br>0.0<br>01        |
| <i>Total score</i>                   | Pearson Correlation<br>.50<br>9**   |
|                                      | Sig. (2-tailed)<br>0.0<br>01        |

Today most office buildings are designed with air conditioning systems, so the temperature level in one room can remain constant all the time. However, certain factors should come into thought in establishing proper temperature level; for instance, obese workers will work best with lower temperature levels, whereas the reverse is true for thin workers. The air quality contains four factors that are: temperature, humidity, ventilation, and cleanliness. A comfortable office environment is a building or room in which workers can generate their work properly if it is clean, with proper range of temperature, enough

ventilation, and a sufficient humidity after the temperature level in an office has been setup properly within the favorable level of humidity (Taylor and Kenny 2008).

Fifth, regarding workspace, design and layout, there is a positive relationship between the workspace, design and layout and employees' productivity. The results shown that, there is a significant correlation between the two variables based on a record of  $.295 P=.001$  that makes *the second hypothesis (H2) is accepted*. It has already been supported by the literature review, as Bright (2009) estimates that improvements in the physical design of the workplace may result in a 5-10 percent increase in employees' productivity. For their part, (Gutman and Glazer, 2009) argue that increasingly an organization's physical layout is designed around employees' needs in order to maximize productivity and satisfaction.

Sixth, regarding equipment and tools, there is a positive relationship between the equipment and tools and employees' productivity. The results shown that, there is a significant correlation between the two variables based on a record of  $.676 P=.001$  that makes *the second hypothesis (H2) is accepted*.

## **5. CONCLUSION AND IMPLICATIONS**

The physical work environment can play an important role in employees' satisfaction and productivity within the workplace. Based on the perceptions of the physical work environment elements (sound, lighting, colour, temperature, work space, design and layout, equipment and tools) physical work environment may have positive or negative effects on employees' satisfaction and productivity. A positive effect has useful results to both hotel and employees. If employees' satisfaction increased, productivity would increase, and if work environment has a negative effect it would affect the employees' satisfaction negatively, which leads to lower the productivity. If there is dysfunction in one of environment element for one of management, it will affect the rest of management negatively. Poor physical work environment will have negative influence on organizational outcomes. These outcomes include employees' satisfaction and employees' productivity. Hence, the purpose of the study was to investigate the impact of physical work environment on employees' satisfaction and productivity.

With regard to the fact that all employees expect suitable environment in their workplace, hotel and poor work environment will have negative influence on establishment outcome. These outcomes include employee's satisfaction and productivity which lead to high rate of employees turn over, increasing work injury and the previous results lead to loss profit and increasing training budget for both existing employees and new hiring.

This guide proposed how to improve and develop the workplace in three steps as follows:

*First*, identifying the physical workplace obstacles through many steps, such as seeking feedback when workers leave the business, for example holding exist interviews, and seeking feedback from managers, supervisors or other internal and external auditors, besides monitoring incident reports, productivity reports, sick leave examination, work injuries and records of work injuries causes.

*Secondly*, controlling the risk and hazards of physical work environment to be eliminated or minimized hence creating a positive work environment.

*Finally*, monitoring and reviewing the risk, as once control measures have been implemented. They should be monitored and reviewed to ensure that they are effective in managing the risk of physical work environment.

The results of this study have significant improvement and developing physical work environment in the hospitality sector in Egypt. *These implications* can be introduced to the academe, hospitality managers, and to further researching efforts.

This study adds to the organization's effort to understand the relationship among physical work environment and employees' satisfaction and productivity. The study has contributed to the research pool of management by conferring attention to the importance of physical work environment and show to which extent it can affect employees' and organizations. The fact, which was statistically recognized, is that physical work environment has an impact on the dependent variables of morale and turnover.

These findings also suggested that management might be able to redesign workspace between offices or equipment and redistribute equipment to create sufficient spaces to increase employees' satisfaction and productivity. This research also sheds light on how physical work environment can affect both employees' satisfaction and productivity. Even though, there is a strong correlation between physical work environment and employees' satisfaction and there is a strong correlation between physical work environment and employees' productivity, there are few recommendations that the management should consider physical work environment.

Hotel management and engineering regional office must proactively work to establish a healthy workplace. The specific action plan must be prepared to issue guidelines to be implemented in new and the existing hotel operations. On the other hand, employees should report any inappropriate or insufficient element in workplace environment to their direct managers. Regarding employees' satisfaction and productivity, hotel management must build good relationships with employees by taking a proactive approach, beginning with listening to employees and their concerns. Managers must acknowledge employees' issues and be motivated to make improvements. Furthermore, managers should seek a feedback from their employees by making surveys and focus group discussions. This will help employees to gain trust and report any element, which hinders their productivity.

## **6. LIMITATION AND SUGGESTIONS FOR FUTURE RESEARCH**

The present study was conducted using survey research only in Hilton five-star hotels in five tourist areas in Egypt. Further research can enlarge the sample size to investigate the impact of physical work environment on employees' satisfaction and productivity on other hotel categories like Hilton four-star hotels or make comparison between Hilton five-star hotels and four-star hotels. Also, the comparison may be conducted between Hilton chain and other hotel chains or it can be done in other sectors like restaurants and Nile cruises.

Furthermore, this study can be the starting point to other research for investigating the impact of physical work environment on other sectors especially in Egypt, like nursing, construction, mining, shipping, and teaching. In addition, further research can use other variables rather than employees' satisfaction, and productivity like employees' turnover, morale, engagement, trust and health to understand the effects of physical work environment on other factors, which can affect the work environment.

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