

Employees' Perception toward Conducive Working Environment in Malaysia Offices

Debbie, L.S. Ang., Yazid, M.Y., and Meor, M. Fared

Abstract— The purpose of this study was to explore the discourse and issues concerning office environmental impact on its end-users. In order to achieve such goal, the current built environment workspace was analyzed to determine variables known to be contributing to poor working environment such as Lightings, Furniture, Storage, Visual Privacy, Noise Level, Thermal Condition and Plants. Such analysis was achieved through a questionnaire survey that was instrumented in various companies over 3 month's period in order to get the employee's expectations and perceptions on the working environment such as their level of satisfaction, preferences and user behavior. The results showed that employees are looking forward to a conducive office workspace that is aesthetic and sustainable.

Keywords—Built Environment, Environmental Impact, Perception, User Behavior

I. INTRODUCTION

IN today's industrialized and mechanical society, employers have been neglecting the importance of creating a conducive workplace where employees are given the prospects of having a variety of stimulating collaborative settings to make the working day more flexible, social and productive. Therefore, workspace is the most essential preliminary stage of design that can affect the whole interior workflow had it not been planned properly. Consequently, bad planning can cause loss of interest, comfort and increase stress.

In the recent published Star Newspaper on 27th February 2013, the productivity level and growth of Malaysian employees has exponentially declined. Even though they work longer hours compared to their other South East Asian counterparts, office-based workers' productivity level in Malaysia remains ominously low at 4.55%. The main standpoint is that employers are counseled to create a conducive environment to ensure slacking or indulgence in social media during working hours from occurring, as quoted by Human Resource Minister Datuk Seri Dr. S. Subramanian [1]. This is amplified by the fact that office employees spend

most of their time inside the building in which they work in, therefore the physical environment of an office or workplace is important to develop a good and healthy working environment [2].

Another challenge is the cyber space as a medium in which the current employees are comfortable in. Due to little restraint and control, employees often seek jobs online with great ease, causing them to become nomadic mercenaries, unlike the older generation of workers who are much more loyal and static.

Taking the aforementioned issues as a calling, this research aims to analyze and document employee's satisfaction on the current office setting and their preferences in the working environment that would increase work productivity. One of the main variables that are analyzed include built environment and the space planning especially because they are considered as critical components of any design project. Designers and owners alike need to discuss and determine the optimum floor layout to ensure there is no acute spaces in order to achieved the require workplace. Workplace environment has received much attention, as more people have recognized that it directly affects work productivity and effectiveness [3].

II. RESEARCH OBJECTIVES

The purpose of this study was to analyze the work place environmental features that affect the employees' work productivity and performance. This study uses the independent variables and dependent variables to document and analyze the effect of office environment in order to identify the problems faced by the users. Workplace problem can be identified through 3 specific research objectives:

1. To study the office furniture planning and the design that affects the working environment.
2. To establish employees' preference and perceptions in order to increase work productivity.
3. To provide a conducive working environment by identifying appropriate interior finishing for office.

III. LITERATURE REVIEW

To begin the discussion on the aforementioned issues, it is first salient to understand and comprehend the current literature and literary resources. Considering the research questions and hypotheses that have been presented above, the literature review shall be structured according to the sub-divisions of the topics.

Debbie, L.S. Ang., Yazid, M.Y., & Meor, M. Fared are with Department of Architecture, Faculty of Design and Architecture, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

A. *Conducive Office Environment*

One of the most important elements in considering the work performance in relation to the work environment, it is first poignant to look at the criteria of a conducive office environment. Lee and Brand (2005) stated that organizations need to provide a flexible workplace in order to maintain quality of work and increase work outcome [4]. In other words, companies need to create a good office setting which includes private and open space in order to provide work comfort. Furthermore, Press and his fellow researchers (1996) stated that environmental effects consist of both physical and emotional sensation whether it is inside or outside the building [5]. These sensations refers to employees' comfort, interior aesthetics, lighting effects, thermal comfort on ventilation and air changes, noise level, visual distraction and ergonomic anthropometry.

B. *Factors Affecting Office Environment*

Given the brief comprehension of conducive office environment above, it is now feasible to confer about the factors affecting the office environment. Three factors are considered for such discussion and they shall now be discussed:

i) *The Importance of Space Planning*

Cooper, Harris, Tranter and Lipman (1980) stated that space planning involves design theory, functionality, and technical utilitarian, which can all be perceived as homogeneous entities [6]. The implication is that functionality connects both physical environment and behavior of each user in which a person will be affected by the cause of the environment. Moreover, Bluysen, Janssen, Van den Brink, and Kluizenaar (2011) further explained the interdependence of workplace environment and performance because a poor indoor building condition will affect the wellbeing of the occupants, and this effect may be short or long term [7]. Subsequently, many people respond to external stressors and different indicators can be utilized in order to explain these responses. Kamarulzaman and his fellow researchers (2011) also stressed that factors influencing the physical office environment will also affect workers' wellbeing and will cause low productivity and behavioral problems; while on the contrary most employees will produce a better work outcome once the employees are comfortable with the physical working environment [2].

ii) *Effects of Noise and Sound*

Mei Zhang, Kang and Jiao (2012) described that among various pollutions, noise often receives the highest number of complaints, and with increasing population, pollutions of noise from cars, airplanes, factory machineries, telephones ringing, people walking and talking are becoming an increasingly common problem across the world [8]. Rotundo and Xie (2008) further pointed out that severe noise impact can lead to social handicap, reduced productivity and performance whether in office or school and cause the malicious problem of absenteeism in the workplace [9]. On top of that, noise can also cause a person to have hypersensitivity to loud sounds, easily getting tired, and depression.

iii) *Effects of Visual Distraction*

Liebl and colleagues (2012) claimed that visual distraction and lack of acoustic insulation can affect employees' work performance and its well-being [10]. Similarly, visual distraction due to lighting effect, background speech and poor lighting conditions are known to be disruptive towards working performance. Goins, Jellema and Zhang (2010) went on to suggest that office components are affected by two factors which are speech and visual privacy, and both factors can be determined by the height of the working partitions or cubicles [11]. Koen Kroemers (1994) also agreed that lighting and daylight design should pay attention to the visual aspects [12]. Visual comfort is multi-dimensional, and thus the glare from light and sunlight must be controlled and patterns of contrast should be moderated.

C. *Work Performance and Productivity*

AminaHameed and Shehla Amjad (2009) explained that in today's modern working society, many corporations are trying to attract more employees to remain loyal and increase productivity by implementing new aesthetic designs and techniques [13]. A research by the architects, Gensler, (2006) of 200 UK business managers show that an improved workplace would boost employees' productivity by 19 percent and their own productivity by 17 percent [14].

Similarly, Saari, Tissari, Valkama and Seppa (2006) accentuated that it is highly salient to incorporate quality of indoor climate considering the factors of health, which could be achieved by rearranging and redesigning floor plan to increase productivity in order to create office work efficiency [15]. Brill and Konar (1984) ranked the factors which are correlated to productivity according to their significance; these factors are sequentially prescribed based on the level of importance: Furniture, Noise, Flexibility, Comfort, Communication, Lighting, Temperature and Air Quality [16]. Lofland, Pizzi and Frick (2004) stated that an insurance company showed that employees who have good ergonomic furniture would have an increased performance of 10 to 15 percent [17]. According to El-Zeiny, (2012) growing number companies are using the interior design of workplace as a tool to help attract and keep employees [18].

D. *Conclusion*

This literature review helps the researcher to have a better understanding towards addressing the key issues. Over the years the number of working population and turnover of company employees are huge. This is a subliminally important fact to consider as office environment will cause significant effects on its end-users. While the initial findings are promising, further research is necessary to find a new avenue as most of the literature is focusing on the working environment in the context of foreign countries. Despite the fact that most Malaysians are aware of the poor workplace environment, they are not used to voice out their opinion to address the issue. Therefore employers need to upgrade the office design to meet the basic requirements of a healthy working environment in order to improve the performance and productivity of the company.

IV. METHODOLOGY

This research paper was extrapolated in order to examine the problems from poor office environment through a series of questionnaire survey. A questionnaire addresses relatively prominent variables like work satisfaction level, performance and productivity, user preferences, behavior, user perspective as well as demographic variables. Among the items included in the questionnaire concerned about the space of the working environment itself are:

- a) The shape of each space and the desire proximity between each units
- b) The exploitable area of each space (area where Workstation can be replaced)
- c) Easy access to window and doors
- d) Size of table, comfort of office chair
- e) Preferred color and privacy needs in the area of material for partitio

A. Respondents

The respondents were selected from 5 different offices which consist of 5 different sectors in the state of Selangor by employing the stratified random sampling method. Stratified sampling method is chosen due to its reliable ability to reduce sampling errors and biasness. It is also selected due to the contentment that stratification will ensures better coverage of the population as compared to other sampling techniques [19]. A pilot test was conducted as a pre-test procedure to help the researcher in selecting samples with credible qualities. After all comments were taken into consideration through pilot study, a new set of edited questionnaire was revised and modifications were made to ease and expedite the responding process.

The amended questionnaire was again distributed to 150 respondents for sampling via on-line, interview and hard copy distribution. Out of all the instruments distributed, a total of 80 survey forms were returned. The 5 point Likert Scale to measure all variables was utilized. It varies from 1 (strongly disagree) to 5 (strongly agree). In terms of data examination and analysis, the SPSS software was used to analyze the employees' respond using descriptive statistical approach. Finally but most importantly, a research development strategy is used in the study to ensure that all related fields are thoroughly explored and systematically organized. These stages are as follows:

Stage 1 : Determining the issues and problems of the office Employee affected by the poor interior design in Malaysia.

Stage 2 : Literature review on interior workspace and Factors affecting the environment .

Stage 3 : Field work study and data collection in designated Population in Petaling Jaya.

Stage 4 : Data analysis, exhibition of findings and Conclusions.

B. Operational Definition

To further illuminate the methodology of this research, several operational definitions must be also be discussed to clarify the process of the research. The independent variables, dependent variable and the research construct shall now be presented.

Independent Variables (IV)

The independent variable(s) can best be described based on the description given by Rosenthal and Rosnow (1991): "Independent variable refers to the status of the presumed 'cause,' changes in which lead to changes in the status of the dependent variable" and "Any event or condition can be conceptualized as either an independent or a dependent variable" [20].

TABLE I
THE INDEPENDENT VARIABLES

Variable	Variable Label	Operation Definitions Categories
1. Gender	Sex of Employee	Male/Female
2. Age	Age of Employee	20-25/26-30/31-40/41-50/51-55/above 55
3. Experience	Years of working	1-5yr/6-10yr/above 10 years
4.Type of jobs	Position in company	Nature of work
5. Duration of work	No of year in the company	1-5yr/6-10yr/11-15yr/16-20y/21-25yr/26 above

The Dependent Variable (DV)

In essence, the Dependent Variable refers to the immovable variable of the research. Nevertheless, it also "refers to the status of the 'effect'(or outcome) in which the researcher is interested' [20]. In sum, the "dependent variable" represents the output or effect, or a set of criteria that is tested to see if it is the effect of inducing the independent variables. For this research's purpose, the dependent variables had been identified and were listed as shown in Table II.

TABLE II
THE DEPENDENT VARIABLES

NO	STATEMENT
1	I don't have a comfortable working space, it is too crowded.
2	My office is very noisy; I can't concentrate on my work.
3	There is no privacy in my office; I need some workstations or cubicles.
4	I have visual difficulties due to the poor lighting in the office.
5	My working area is too dark; I feel that my eyes are strained.
6	I am unable to concentrate, due to the thermal condition of the office.
7	My workplace has too much daylight that causes heat.
8	The telephone and typing noise cause me headaches.
9	I feel dizzy due to stuffiness in my office.
10	The colors of my office wall are too bright and they strain my eyes.
11	My office is too humid due to lack of ventilation.
12	The carpet is humid and smelly and I can't breathe well.

C. Determination of Space and Workstation Module

TABLE III
AREA AND MEASURING

Description	Measure
Space Planning	Cubicle : 2.1m x 2.4m (with desk, side return, storage cabinet, ergo chair, visitor chair. Partition Ht: 1m/1.2m /1.5m ht w/ Semi glazed/full ht Storage: Soft copy or compactor Cubicle Distance : allow min 0.9m - 1.2m walkway
Office Environment	Security : Space should be away Toilet and staircase Lighting : 1.2m x 1.5m per light Noise : Carpet or vinyl tiles Visual Privacy : Include partition And plants Orientation : Avoid direct daylight Within 40 degree from the line of Sight [21].
Furniture & Colours	Quality of chair : Comfortable & Ergonomic Office colour : Not more than 3

Source*: So Young Lee, Jay L. Brand (2005)

V. RESULTS AND FINDINGS

A. Respondents' Background

Table IV shows the respondents' demographic background based on gender in relation to their age. Majority of the respondents at 35%, are from the age group of 30-40 years old, followed by the age group 40-50 years old at 22.5%. The smallest groups are from the age of 50-55 years followed by the group age of 55 years and above.

TABLE IV
RESPONDENTS' DEMOGRAPHY ACCORDING TO GENDER
IN THE COMPANY

Age	Male	Female	Percent (%)
20-25	5	5	12.5
25-30	2	14	20.0
30-40	5	23	35.0
40-50	3	15	22.5
50-55	2	4	7.5
Above 55	1	1	2.5

B. Respondents' Position

Table V represents the current position of the respondents in their companies. It shows that most respondents are holding executive positions (35%). The other respondents are

known to be positioned as supervisors (18.75%), educators/designers (12.5%) and others (11.25%).

TABLE V
RESPONDENTS' CURRENT POSITION IN THE COMPANY

Current Position	Frequency	Percent (%)
Educator/Designer	10	12.5
Manager	6	7.5
Executive	28	35.0
Supervisor	15	18.75
Clerk	5	6.25
Secretary	7	8.75
Others	9	11.25

Working Experience

Table VI shows the number of years the respondents have been serving their respective companies. The higher turnover of employee score of 42% comes from the respondents who had only served for 1-5 years, followed by 38.75% of turnover rate for those who had served for 6-10 years. Only 10% of the respondents have only worked for more than 10 years and similarly, only 7.5% of the respondents have served for more than 16 to 20 years.

TABLE VI
RESPONDENTS' WORKING EXPERIENCE IN THE COMPANY

Working Duration	Frequency	Percent (%)
1 – 5 years	34	42.5
6 – 10 years	23	28.75
11 – 15 years	8	10.0
16 – 20 years	6	7.5
21 – 25 years	6	7.5
26 years above	3	3.75

Firm Type

The respondents of this study are designated from the private sector with the staff population that ranges from 1-10 personnel, 10-50, 50-100 and above 100 personnel. Most of the respondents are from a consultant company at (53.75%). This is followed by a private institution (15%), an aviation firm (12.5%), a trading company (10%) and a design company (8.75%).

TABLE VII
RESPONDENTS' TYPE OF FIRM

Firm type	Frequency	Percent (%)
Consultant Company	43	53.75
Trading Company	8	10.0
Design Company	7	8.75
Aviation Ticketing	10	12.5
Private Institution	12	15.0

C. Environmental Effects on Employees

Table VIII shows the environment satisfaction level. The highest level of space planning problem are crowded

walkway which score 42%, follow by furniture arrangement 37%. As for environmental effect, most employees are affected by the noise level which score 47% and 37% complain about the color in the office are average only.

TABLE VIII
ENVIRONMENT SATISFACTION VARIABLES

Variables		Crowded	Comfortable	Average	Poor	Good
Space planning	Furniture	37	19	15	5	4
	Arrangement	25	23	18	6	8
	Walk way	42	17	14	5	2
	Personal cubicle	22	15	25	8	10
	Storage	10	12	45	10	3
	Chair quality	0	32	38	8	2
	Desk quality	0	28	37	10	5
	Filling system	12	14	25	21	8
Environment	Noise level	0	5	23	47	5
	Visual level	0	24	26	18	12
	Temperature	0	17	30	20	13
	Plants	0	47	24	4	5
	Lighting too bright	0	23	22	25	10
Colours	Wall colour	0	21	37	15	7
	Partition colour	0	24	36	14	6
	Furniture colour	0	20	28	25	7
	Carpet colour	0	19	27	29	5

D. Level of Productivity

Table IX shows the productivity level of respondents. It is most intriguing to note that the consultant firm has the highest productivity level drop with 20 of the employees reported to drop productivity by more than 30%, while 18 more employees suffered work rate drop of 10-20%, and 5 more employees reported to have lost 10% of their productivity. The design company has the lowest productivity level drop with above 30% of 3 employees, 10-20% also 3 employees and 10% only 1 employee.

TABLE IX
PRODUCTIVITY AFFECTED BY POOR ENVIRONMENT

Firm Type	0-10%	10-20%	> 30%
Consultant Company	5	18	20
Trading Company	2	2	4
Design Company	1	3	3
Aviation Ticketing	1	4	5
Private Institution	2	3	7

VI. CONCLUSION

The comparative results from the survey will give support to the architect and designer in developing new designs effectively in creating a conducive and functional office. In today's modern office, the organizations and establishments not only need to face challenges from the same sector, as they also need to upgrade and provide a conducive office to motivate and inspire the employees to work in a felicitous and productive environment. This will help to improve employees' creativity and reduce stress in order to achieve optimum work efficiency. It is hoped that this thesis will enable designers to identify the needs and requirements of each end-user in order to improve the current state of the Malaysian working environment. Ultimately, interior designers are to respond to the end-users' needs in order to achieve an effective office design.

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