THE RELATIONSHIP BETWEEN SPATIAL ENVIRONMENT AND FURNITURE COMFORT TOWARDS EMPLOYEE PRODUCTIVITY AT THE OFFICE OF SENAI AIRPORT TERMINAL SERVICES

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A project report submitted in partial fulfilment of the requirement for the award of Bachelor’s Degree in Technology Management (Production and Operation) with Honours

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JANUARY 2018
DECLARATION

I hereby declare that the work in this project report is my own except for quotations and summaries which have been duly acknowledged.

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DR. NOR AZIATI BINTI ABDUL HAMID
DEDICATION

Alhamdulillah.. Thank you to Allah for his merciful

This thesis I dedicated to my beloved parents

_Umar Bin Ahmad_ and _Faridah Binti Salam_

Who have raised me to be the person I am today.

Not forget to my lovely siblings

Nurul Farahani, Ahmad Syafiq and Ahmad Syahir Zakwan

Who always give motivation and inspiration to me.

For my friends that help and support me whenever I need.

Thanks you for everything
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Last but not least, my deepest gratitude goes to my beloved parents; Umar Bin Ahmad and Faridah Binti Salam for their support, encouragement, endless love and prayers. To those who indirectly contributed in this research, your kindness means a lot to me. Thank you very much.
ABSTRACT

This study discusses on the relationship between spatial environment and furniture comfort towards employee productivity at office of Senai Airport Terminal Services. This study aims to identify the existing level of spatial environment and furniture comfort of the main office, operation centre office, technical office and security office. Spatial environment and furniture comfort some of the element of office comfort that have an impact towards productivity of the workers. There are various study have been done related to this topic yet there is still lacking of research done at the airport terminal services. The study investigate the environment of the office at Senai Airport Terminal Services to further analyze the relationship between spatial environment and furniture comfort towards productivity. The study employed self-administered. Sample size for the study is 52 that yield 86.67 percent of the response rate. The study involved all employees from various position and various department including staff with shift working hours. Simple random sampling is used in this research. The main findings of the study shows that there is no relationship between spatial environment with the productivity of the employees who are worked here, meanwhile there is a relationship between furniture (chair) comfort towards productivity of the employees who are worked here. This research would help to understand the impact of spatial environment and furniture on productivity and minimize the error of top level of management on providing the workplace for their employees. The findings of this research could help the top management of an organization to provide better arrangement layout of the office space beside the ergonomically designed furniture.
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<th>Description</th>
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<tbody>
<tr>
<td>POE</td>
<td>Post Occupancy Evaluation</td>
</tr>
<tr>
<td>BIFMA</td>
<td>Business &amp; Institutional Furniture Manufacturer’s Association</td>
</tr>
<tr>
<td>TFM</td>
<td>Traffic Flow Management</td>
</tr>
<tr>
<td>NAS</td>
<td>National Airspace System</td>
</tr>
<tr>
<td>MSDs</td>
<td>Musculoskeletal Disorders</td>
</tr>
<tr>
<td>IAQ</td>
<td>Indoor Air Quality</td>
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<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
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<td>SPSS</td>
<td>Statistical Package for Social Science</td>
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CHAPTER 1

INTRODUCTION

1.1 Introduction

Previous research focusing on various factors impacted the level of productivity of an organization have been done repeatedly in different background setting. Scholars such as B. P. Haynes, (2007, 2008b) and Akimoto, (2010) were among the scholars that investigate the impact of office comfort on productivity besides highlighting the environment effect such as thermal comfort, illumination and the office condition. Based on Ministry of Labor and Human Resources Development, productivity is defined as the efficient use of resources, labor, capital, land, materials, energy, information, in the production of various goods and services. Higher productivity means accomplishing more with the same amount of resources or achieving higher output in terms of volume and quality from the same input. Productivity is also expressed as output or input.

According to Abdul and Awan (2015) developing a conducive working environment in an organization can increase the level of productivity. In the other hand, worker’s comfort plays an important role in increasing worker’s productivity. As mentioned by Miller (2008), worker comfort directly affects important predictors of operational efficiency, such as productivity, job satisfaction, retention, well-being and health. Thus, the top management level of an organization must consider the human besides focusing on high technology adoption to increase productivity and profit simultaneously.
McDougall et al (2012) found that office evaluations have usually been Post Occupancy Evaluation (POE) surveys that assess employee satisfaction with their working environments. Post-occupancy Evaluation (POE) is a famous tool that able to indicate satisfaction and comfort level needs by building occupants as lessons learned to identify problems in indoor environments (Khalil & Husin, 2009). A few tweaks to our workplace could make more comfortable and more productive. According to Miller (2008) most people can recognize comfort when they feel it, but they tend to describe the feeling in similes. He further added that comfort is an easy concept, having evaded watertight and universal definition for many years in disciplines, such as nursing, that are all about delivering comfort. The term environment in the context of workplace is the location where a task is completed, including people that are we working together, the surrounding of the workplace, the facilities provided and a lot more.

Based on Abdul and Awan (2015) environment literally means surroundings and all those things that have an impact on the human being during their lifetime. They added, a working environment is the environment where people work together for achieving organization objectives. It means systems, processes, structures and tools and all those things which interact with employees and affect in positive or negative ways on employee performance. Therefore, we can conclude that office comfort has a greater impact on the level of productivity of an organization.

1.2 Research Background

Based on Khalil & Husin (2009), the indoor environmental factors considered in office building must be determined in order to meet user’s requirements. Disruption of indoor environment may constitute to reduce occupants’ efficiency and work productivity. In the Malaysian context, there is still lack of study highlighted in this issue even though the office comfort is one of the most important aspect that have an impact to the productivity of an organization.

There are various types of office in our country based on business entities, business process and climate. Most often, business entities are created to sell a product or a service. There are many types of business entities defined in the legal
systems of various countries. These include corporations, cooperatives, partnerships, sole traders, limited liability company and other specifically permitted and labelled types of entities.

Based on previous research that have been done by Hameed & Amjad (2009) already stated that there are five main indicators that are representing the term office comfort including thermal comfort, noise, lighting, spatial arrangement and furniture. They also reported that office comfort contribute 58% towards worker performance.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Total number of respondents</th>
<th>Mean (SD) for factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furniture</td>
<td>105</td>
<td>3.70 (0.63)</td>
</tr>
<tr>
<td>Noise</td>
<td>105</td>
<td>3.67 (0.62)</td>
</tr>
<tr>
<td>Lighting</td>
<td>105</td>
<td>3.23 (0.77)</td>
</tr>
<tr>
<td>Temperature</td>
<td>105</td>
<td>3.86 (0.44)</td>
</tr>
<tr>
<td>Spatial Environment</td>
<td>105</td>
<td>3.41 (0.63)</td>
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In this research only two indicators will be considered as a main element of the research that are spatial arrangement and furniture comfort towards the productivity of the organization.

Before designers began to take serious interest in how satisfaction, productivity, and collaboration were affected by the environment, offices were created to fit the most people possible in the least amount of space (Polis, 2015). This statement shows that the main purpose of the office were created are to fit all the workers to work together at the same places even different department. So it will be easier for the workers communicate with each others.

As time and technology continue to morph the business world, new designs of office space will continue to shape how employees work. Many offices today have changed to open design in which employees bring their laptops to work and are free to set up in a number of places (Lagorio-Chafkin, 2014). Based on Saval (2014) this does not mean that the use of cubicles should be completely eliminated some people depending on their personalities may find it difficult to work in open spaces and prefer the secluded feel of a cubicle. Because these types of offices provide for more collaboration, they can increase productivity of the organization.
In the last thirty years, air traffic has increased rapidly, causing the need to build more and larger airports. One of the most important factors to consider when building a new airport is the impacts it may have on the environment. Airports today are facing increasing competition, security and safety concerns, government regulation, and passenger expectations. At the same, they are under pressure to keep prices low and quality high. Efficient airport operations management is critical to staying ahead of the competition. The top management of the airport must provide a comprehensive technology and platform for optimizing airport operations management, enabling airports to drive both performance and profitability. As a result, airport operation and development will likely become increasingly important. A potential challenge to the completion of these projects is community concern regarding airport environmental impacts. This is because of the airport operations involving a range of activities that affect the environment (Luther, 2007).

So based on their statement, the study could conclude that spatial environment of the office and the furniture selected must be considered as one of the main elements in providing an effective working environment to produce high level of productivity.
1.2.1 Senai Airport Terminal Services

Senai Airport Terminal Services Sdn Bhd, a member of the MMC Group Companies owns and manages the operation of the Senai International Airport. Senai International Airport, (Code IATA: JHB; ICAO: WMKJ) was formerly known as Sultan Ismail International Airport and is the domestic and international airport serving the southern region of Peninsular Malaysia. Built in 1974, the airport was operated by Malaysia Airports Holdings Berhad until November 2003, when its management and operation were acquired by Senai Airport Terminal Services Sdn. Bhd

Strategically located in one of Malaysia’s most strategic development zones - Iskandar Malaysia, Senai International Airport enjoys close proximity to modern port facilities of the Port of Tanjung Pelepas and Johor Port. The airport is well linked to the nation’s major highways and railway network, which spans across Peninsular Malaysia. The region’s dynamic economic and tourist centres are within a mere 4-6 hour flight radius from Senai International Airport, reaching out to Hong Kong, China, Macau, Guangdong, North Australia, India, the Philippines, Indonesia and Indochina.

Figure 1.1: Flight Radius from Senai International Airport
1.2 Problem Statement

In many cases, the top management in a Malaysian organization had noticed the importance of worker’s comfort level while working at the workplace. However, the direct effect of office comfort towards worker’s performance usually neglected. Even the level of satisfaction of the staff towards office comfort rarely been measured in Malaysia settings. It is important to measure the impact of spatial environment and furniture comfort towards productivity for long term effects. So that the higher management could provide a conducive place from time to time. So the aim of this research is to determine the relationship between spatial environment and furniture comfort towards productivity at Senai Airport Terminal Services, Johor.

The American Society of Interior Designers ASID, (1999) carried out an independent study and revealed that the physical workplace design is one of the top three factors, which affect performance and job satisfaction. A study done by Daghigh et al., (2012) in one of the public universities in Malaysia shows that only 40% of the staff feel satisfied with their office comfort with acception of 60%. The study results showed that 31% of people were satisfied with their jobs and had pleasing workplace environments. Almost 50% of people were seeking jobs and said that they would prefer a job in a company where the physical environment is good.

Sundstrom (as cited in Hameed & Amjad, 2009) claimed that most of the people spend 50% of their lives within indoor environments, which greatly influence their mental status, actions, abilities and performance. He further added better outcomes and increased productivity is assumed to be the result of better workplace environment. Better physical environment of office will boosts the employees and ultimately improve their productivity. This show that indoor environment was a very important factor to produce high level of performance and productivity.

In a simple word, spatial arrangement is the spatial property of the way in which something is placed such as the arrangement of the furniture and the placement of the chairs or desk. Basically, this two element is commonly related together. It means that for providing a proper workplace to produce high level of productivity, the spatial environment of the office must be suitable and also the furniture selected in the office must be correct and make workers more comfortable to be in the office.
This element is selected because to meet the employees' comfort, spatial environment and furniture are related together to be one of the most important element need to be focused on. The layout of an office plays a key role in the productivity of employees specifically when talking about government organization, which is for public dealing (Jaffri, 2015). He added when the offices are well designed and the quality interactions are encouraged, employees tend to learn from each other in both the formal and informal ways.

Based on the research that have been done by Hameed & Amjad (2009) shows that spatial environment and furniture have the same value of mean for factor which affects the productivity of employees and also second highest value of mine from all five factors. It shows that this two element are complementing each other to be an important factor of office comfort towards productivity. In the other hands, employees in different organizations have different office designs. Every office has unique furniture and spatial environment (Hameed & Amjad, 2009). So we can state that the operational control center also has their own office design.

There are four best practices for the spatial environment in the office center that are the designer must understand the use of the room, the spatial environment must consider on the human factors, the spatial environment must be standardized design across location and also the designer must plan for ongoing support for the future.

It means that for providing a proper workplace to produce high level of productivity, the spatial environment of the office must be considered on these four practices and also the chair selected in the office must be based on the standard measurement stated by The Business and Institutional Furniture Manufacturer’s Association (BIFMA) to achieve office comfort level.

Since the chair has a direct influence on body posture, individuals suffering from musculoskeletal symptoms related to prolonged sitting are often advised to alter the chair of their workstations (Van Niekerk, Louw, & Hillier, 2012). So by changing the chair is also the most pragmatic action because altering the work surface may be limited by physical space constraints and an adjustable work surface is not always economically viable. Therefore, modifying the workstation’s chair is often the most feasible initial step to ascertain whether the design of the workstation is associated with the musculoskeletal symptoms.
This research will specifically examine the spatial environment and furniture comfort of Senai Airport Terminal Services which used by the workers as a main office to control their operation. For now, there still no suitable model on how to arrange their office space and what furniture are suitable in the main office at the airport. If this condition is prolonged, the workers in that office will be affected from performing their duties that can result in decreasing level of productivity.

Neyshabouri, (2015) stated that over the last two decades the successes of Traffic Flow Management (TFM) initiatives have successfully decreased the delay for the flights in the National Airspace System (NAS). The next opportunity for efficiency improvement is airport surface operations. In addition to improving efficiencies in normal operations, irregular operations with excessive surface counts have a significant impact on airline operations at the airport as well as the airline within the network. Here shows how important it is the productivity of the employees at the operation surface airport to ensure the smoothness of the overall operation.

At the very beginning of the 20th century, Air industry started to aggressively compete with one another. Not only Airline Company, but also Airport itself tries to play against others to survive in the rival. Based on the research that's been done by (Sopadang, 2016) in order to be competitive, Airport aims to have an efficiency and effectiveness in all kinds of activities. Passenger terminal, runways, employees, check in desks and others is responsible for producing a better, higher service quality than other potential airports. He added, to have incomparably satisfied customers, airport would have to supply sufficient runways and terminal capacity to stay away from the delays at even the demanding period. To ensure that the airport will have the superlative performance, as well as, can generate profitability, the Airport industry may need to constantly monitor their performance, in order to increase the market force and more than that a competitive environment.

Therefore, this research is conducted to provide a better spatial environment and a furniture framework in order to prevent the decrease of workplace comfort hence will affect the quality performance and productivity rate of the workers in fulfilling its obligations and duties.
1.3 Research Questions

The current research has aimed to answer the following questions:

(i) What is the existing level of spatial environment comfort at the office of Senai Airport Terminal Services?

(ii) What is the existing level of furniture comfort at the office of Senai Airport Terminal Services?

(iii) What is the relationship of spatial environment and furniture comfort on productivity?

1.4 Research Objectives

The measurable objectives of this research being made are as follows:

(i) To identify the existing level of spatial environment comfort at the office of Senai Airport Terminal Services.

(ii) To determine the existing level of furniture comfort at the office of Senai Airport Terminal Services.

(iii) To evaluate the relationship of spatial environment and furniture comfort on productivity.