

THE EFFECT OF OFFICE ERGONOMICS ON EMPLOYEES' PRODUCTIVITY
LEVEL IN PETRONAS ICT SDN BHD

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‘Saya akui bahawa telah membaca karya ini dan pada pandangan saya karya ini adalah memadai dari segi skop dan kualiti untuk tujuan penganugerahan Ijazah Sarjana Muda Pengurusan Teknologi (Inovasi Teknologi)

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This report is submitted to fulfil the requirement for the award of the degree of
Bachelor of Technology Management with Honors (Technology Innovation)

Faculty of Technology Management and Technopreneurship
Universiti Teknikal Malaysia Melaka

JUNE 2014

Hereby, I acknowledge that this report is my own work except for citations stated in
the references

Signature :

Name :

Date :

“For my beloved parents, family and friends”

ACKNOWLEDGEMENT

It gives me a great pleasure to express my greatest appreciation to all those people who had helped me along the study until writing this report.

First and foremost, I would like to express my grateful to Allah SWT become bring me here and give a good health. Secondly, I would like to thank to my family for all their support, love and prayer.

Next, the special thank goes to my helpful supervisor Professor Dr.KhairulBaharein Bin Mohd Noor. The supervision and support from him gave truly help the progression and smoothness of the PSM project. The co-operation is much indeed appreciated.

Not forget, great appreciation go to the rest my friends that help me directly or indirectly from time to time during PSM progress. The whole PSM project really brought us together to appreciate the true value of friendship and respect of each other.

Great deals appreciated go to the contribution of my faculty- Faculty of Technology Management and Technopreneurship (FPTT). I also would like to thank all the staff in FPTT office that been patient in helping me to complete this project from the beginning until the end.

ABSTRACT

This project paper describes the overview on how ergonomics effects the productivity level among employees' in PETRONAS ICT Sdn. Bhd. Was made to accomplish the UTeM's prerequisite for a bachelor degree. The researcher had found out through her research project that the performance level of the ergonomics is proportionally related with ergonomics. In short, the better the ergonomics the higher the performance level of the study group. The word better connotes the acceptance of staff; to their working place and environment as condusive with this study, the researcher hopes that this company ought to increase its awareness towards the need of office ergonomics so as to increase its staff productivity. A survey was conducted and questionnaire was distributed to 80 respondents and rate of return is 100 percent. The data was analysed quantitatively and resolving the problem. From the result, the researcher found that computer position and arrangement affect the most in productivity performance level followed by design of workstation design, posture position and the environment.

ABSTRAK

Kertas projek ini menerangkan bagaimana kesan-kesan ergonomik mempengaruhi tahap produktiviti di kalangan pekerja-pekerja PETRONAS ICT Sdn. Bhd. dan dibuat oleh penyelidik sebagai prasyarat untuknya mendapat Ijazah Sarjana Muda. Dapatan dari penyelidikannya bahawa terdapat korelasi positif yang berkadar antara aplikasi ergonomik dengan tahap produktiviti di kalangan pekerja-pekerja PETRONAS ICT Sdn. Bhd. Angkubah-angkubah yang digunakan dalam penyelidikan ini, ialah kedudukan 'posture', reka bentuk tempat bekerja dalam pejabat, cara kedudukan dan susunan komputer dan akhir sekali, faktor persekitaran. Responden telah menunjuk minat mereka yang tinggi untuk bekerja bila angkubah-angkubah tersebut diatas diaplikasikan dengan wajarnya. Minat yang ditunjukkan adalah petanda kecapaian kepuasan pekerja dan dengan itu, tahap produktiviti yang lebih merangsangkan dapat dicapai. Oleh itu, adalah diharapkan pihak pengurusan dapat memperbaiki kesedaran kepentingan terhadap perlunya ergonomik sebagai alat untuk meningkatkan produktiviti. Sebanyak 80 soalselidik telah diberi dan telah dikembalikan 100%. Data-data telah dianalisa secara kuantitatif. Dengan menunjukkan tata tingkat kepentingan angkubah-angkubah ikut merit, yang didahului oleh kedudukan komputer dan susunannya, diikuti oleh reka bentuk tempat bekerja dalam pejabat, kedudukan 'posture' dan akhir sekali, persekitaran.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Office work is rapidly changing, with the development of computers and devices that help us to make our work easier, while at the same time new problems for both management and employees". Ergonomics has been important issue to the top management and employees" in most various working industries. Implementing ergonomic solutions can make employees" more comfortable and thus increase productivity (*The Advantages of Ergonomics*, n.d.). In fact, ergonomically design office also can boost up the productivity level among employees". Office workers are more productive as well as more comfortable and less likely to report injuries when they are provided well-designed ergonomic furniture and are trained to use it (*The Advantages of Ergonomics*, n.d.). Therefore, ergonomics is believed to have played a fundamental role in increasing organizational health and when come together with safety act will certainly increase the workers productivity level as well as their overall performance.

Ergonomics objectives are to make employees“ realize a safe, secure and comfortable society and to maintain and promote people“s health (*Officewise: A guide to health and safety in the office*, 2008). Ergonomics is the scientific study of human work (Hfes.org, 2000). It considers the physical and mental capabilities and limits of the worker as he or she interacts with tools, equipment, work methods, task and the working environment. While, office ergonomics is the branch of ergonomics dealing specifically with the office environment. With the development of high technology computer, leads to the increasing number of injuries and back pain within the employees“. In recent years the main focus of the office has been on computer work due to the rapid increase in computer use in the modern office and the associated increase in injuries (*Office Ergonomics*, 2013, pp. 8-12). Thus office ergonomics is worth to be studied in order to increase the productivity performance level among employees“.

On average, employees“ work about 40 hours a week, which is equivalent to eight hours a day, based on five-day a week. Besides that, employees“ tend to stay back after work and return home later than their working hour. This amount of working hours can decrease the productivity of employees. According to Leaderonomics CEO Roshan Thiran, the productivity of the workforce in our country is still low. He believes that ways should be found to increase productivity by doing the same amount of work but in a lesser amount of time. One should optimise the time given at work to produce quality results (Jayabalan, 2012).

Productivity is about the effectiveness and efficient use of all resources. Resources include time, people, knowledge, information, finance, equipment, space, energy, materials. This research is focusing on how to improve labour productivity. Productivity is commonly defined as a ratio of a volume measure of output to a measure of input use (Freeman, 2008). Among other productivity measures are multi-factor productivity, that measures such as multi-factor productivity, labour productivity is particularly important in the economic and statistical analysis in a country. (Rebecca, 2008) proposed that labour productivity is a revealing indicator of several economic indicator as it offers a dynamic measure of productivity which helps explain economic foundations that are necessary for both economic growth and

social development. Thus, the productivity is depending to performance of the labour itself.

Based on Bureau of Labor Statistics, productivity is measured by comparing the amount of goods and services produced with the inputs which were used in production. Labor productivity is the ratio of the output of goods and services to the labor hours devoted to the production of that output. Productivity can also be measured if the performance of the employees keep increasing and can make more than one job effectively at one time. Advances in productivity, that is, which is the labor able to produce more with the same or less input, are a significant sources of increased potential national income (Bls.gov, 2013).

The concept of office ergonomics is to identify the elements that influence the productivity of employees' performance level within the company. The element that will be highlighted in this research are the working posture, the design of workstation furniture, computer use including the screen display and input device, organizational issues and the environment.

In this challenging world, both management and employees need to focus on the importance of ergonomics in order to increase productivity level among them. This is because by applying the ergonomically working environment can give advantages such as:

- i. Increased saving.
 - Fewer injuries
 - More productive and sustainable employees'
 - Fewer workers' compensation claims
 - ✓ The average direct cost of a workers' compensation claim for an MSD is \$14,120 (Oregon OSHA, 2007)
 - ✓ The indirect cost involved bring the total average claim cost to well over \$32,000
- ii. Fewer employees experiencing pain

- Implementation ergonomics improvements can reduce the risk factors that lead to discomfort.
- iii. Increased Productivity
- Ergonomic improvements can reduce the primary risk factors, so worker are more efficient, productive, and have greater job satisfaction.
- iv. Increased morale
- Attention to ergonomics can make employees feel valued because they know their employer is making their work safer.
- v. Reduced absenteeism
- Ergonomics leads to healthy and pain-free workers who are more likely to be engaged and productivity. (*The Advantages of Ergonomics*, n.d.).

PETRONAS ICT Sdn Bhd (formerly known as iPerintis Sdn Bhd) was established in 2000, as of today, this is a company employing over 1000 people, with offices in 17 locations in Malaysia and presence in a number of international projects. PETRONAS ICT Sdn Bhd is a Malaysian MSC-Status company. The core business of this company involves end-to-end management of all Information and Communications Technology (ICT) Services under PETRONAS environment.

Therefore, the researcher needs to evaluate how far PETRONAS ICT uses ergonomically office environment to help increasing the productivity performance level within the management and the employees“ in order to achieve its objectives without affecting the cost of injuries.

1.2 Problem Statement

The awareness on the importance of ergonomics have arise when the number of accidents within the working environment keep on increasing each year. Malaysia is still unaware of the importance of ergonomics. “Except for occupational safety and health practitioners, ergonomics is still not widely known in Malaysia (Nst.com.my, 2012).

The accident statistical reported by the Social Security Organisation of Malaysia, that the number of accidents related to musculo-skeletal disease had increased from 14 cases in 2006 to 194 cases in 2014. They also mentioned that the industries suffer from tangible and intangible losses because of increased medication costs, decreased productivity, work quality and decreased worker morale. In addition, employees” tends to take medical certification due to stress and uncomfortable workplace they face during work hour is grossly a technical mistake due to unconducive working environment. Thus, use of ergonomically designed tools or equipment and the introduction of ergonomically formed measures that help to reduce work-related physical strain largely contribute to safety assurance as well as prevention of musculoskeletal disorder such as back pain and increases in productivity.

It is well documented in other parts of the world that industries that implement ergonomics programmes report significant decreases in accidents, injuries, illnesses and healthcare costs over time, along with increase in productivity, work efficiency, product quality and worker morale.

A workplace solution that prevents just a single injury or incident, will save more than enough to pay for the best ergonomic equipment by itself, with rare exceptions (Hagman, 2013). (The cost benefits of safer, ergonomic manufacturing can be estimated by visiting OSHA”s Safety Pays website.) Employers who commit to the ergonomic workplace philosophy and invest in sound installations will experience a decrease in workers” compensation costs, increased productivity and

less sick days out. Based on Hagman also, they will also realize other, less tangible, but perhaps equally profound gains.

The U.S. Bureau of Labor Statistics reports 650,000 work-related musculoskeletal disorders (WRMSDs), resulting in costs to employers of over 20 billion dollars (Bls.gov, 2013). These costs include Worker's Compensation and medical expenses, the latter of which are increasing 2.5 times faster than benefit costs (Soundergonomics.com, 2005).

Below is the statistic retrieved from Bureau of Labor Statistics.

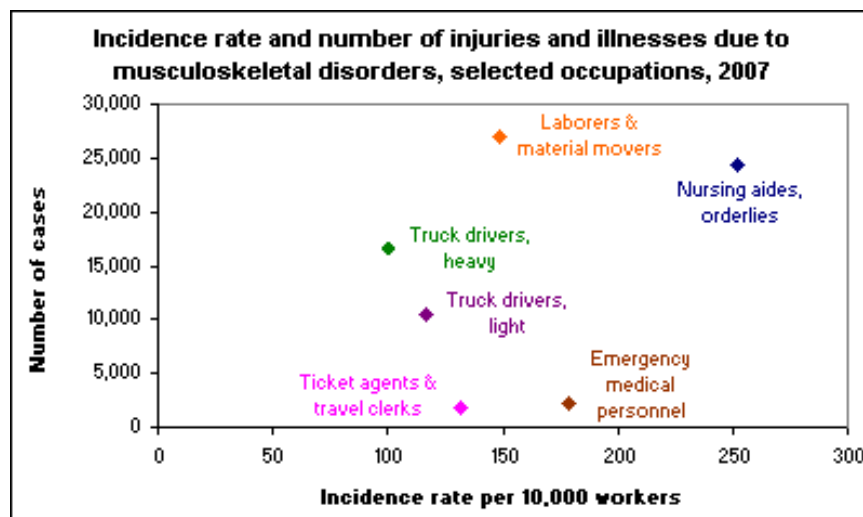


Figure 1.1: Incident rate and number of injuries based on Bureau of Labor Statistics. (Source: Bureau of Labor Statistics, 2007)

In Malaysia, below are the statistics of accidents based on sector retrieved from based Department of Occupational Safety and Health official websites.

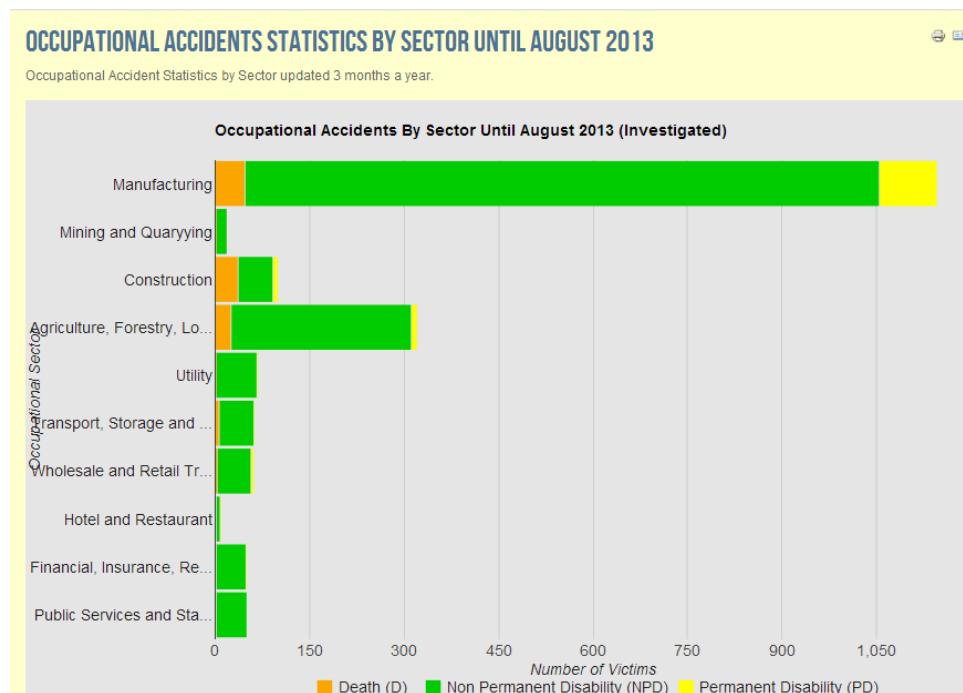


Figure 1.2: Statistic of Occupational Accident by Sector until August 2013.
(Source: OSHA, 2013)

The highest number of fatalities was in the manufacturing sector which had about 1050 cases. This has followed by Agriculture, Forestry and others sector, which is 300 cases. The other sector which is hotel and restaurants, construction, wholesale, storage and others had about average number of cases that is between 1 to 150 cases.

1.3 Research Objectives

This study aim is to achieve the effectiveness of office ergonomics in order to increase the productivity performance level among employees". The research objectives are:

1. To determine key factors of office ergonomics that effects the productivity level of employees".
2. To rank the key components that effects productivity level.
3. To make recommendation to successfully implement ergonomically design office.

1.4 Research Questions

The researcher attempts to answer the questions and get the information about the problem.

1. What are the key factors of office ergonomics that effect productivity level?
2. What are the ranking of key factors in office ergonomics that strongly effect productivity level?
3. What are the recommendations to successfully implement ergonomically design office?

1.5 Scope of Study

This research focused on the productivity performance employees" that been affected by office ergonomics at PETRONAS ICT Sdn. Bhd. The increasing number of employees" suffering back pain and other injuries is the critical issue in management industry and need to improve the application of office ergonomics to enhance productivity among them. Office ergonomics is useful as an improvement factors that lead to increasing productivity and can achieved the company objectives and save cost.

The scope of study is to increase awareness among employee and employers on how important is "Office Ergonomics" can affect their life. Many organizations in Malaysia have not been influenced on how Ergonomic can improve their health, productivity and surrounding. The mood once entering the office also can become happier if we took "Office Ergonomics" as a vital factor inside our company.

The scope of this research will focus on element or factors that contribute to better workplace in Office. It includes the working posture, the design of workstation furniture, computer use, screen resolutions, input device as well as the Environments.

The researcher will also take top management to undergo interview session in order to get information about how frequent the injuries happen within time. Questionnaire will be distributed to employees" who will be included in the sampling frame. The location of this research is in the PETRONAS ICT only.

1.6 Limitation of Study

To make a complete list of acceptable office ergonomics is quite impossible. This is because any suggested office ergonomics will not suit every individual even though it looks perfect to most individual. The individual differences such age, health, no sex, mood and physical condition might be the reason for performance accountability. So, this research will be limited to a few variables, namely, posture position, the design of workstation design, computer position and arrangement and lastly, the environment.

The researcher has only 4 months to complete this research. The researcher faces some difficulties in order to complete this research within a specific period, because it requires a lot of time to gather enough data and information. Researcher also only focusing on distributing questionnaires on one company since the time is limited.

1.7 Importance of the Study

The importance of this research study in academic view is that this research can be used for future research in the same scope of study. Future researcher can find that this study can be improved in the future. Besides that, this research can become as reference for the company to track, record and make reference for future improvement.

1.8 Summary

Office ergonomics is important to increase productivity performance level among employees". This is because ergonomically design office can reduce the back pain problems faced by employees" as well as other injuries. It also leads to better awareness among them in order to maintaining the application of office ergonomics and increase productivity performance level. Thus, company can save cost, work in safe and „stress-less" office environment. The researcher can identify the effectiveness of office ergonomics in order to boost up the employees" performance level.