A STUDY ON THE WORKING EXPERIENCE OF LEFT-HANDED EMPLOYEES WITH OFFICE WORKSTATION ERGONOMICS AT RIGHT-HANDED WORKPLACE IN UNIMAS

Kang In Sin

Bachelor of Science with Honours
(Human Resource Development)
2015

A STUDY ON THE WORKING EXPERIENCE OF LEFT-HANDED EMPLOYEES WITH OFFICE WORKSTATION ERGONOMICS AT RIGHT-HANDED WORKPLACE IN UNIMAS

KANG IN SIN

This project is submitted in partial fulfilment of the requirements for a
Bachelor of Science with Honours
(Human Resource Development)

Faculty of Cognitive Sciences and Human Development
UNIVERSITI MALAYSIA SARAWAK
(2015)

UNIVERSITI MALAYSIA SARAWAK

Grade: _____

Please tick (√)

Final Year Project Report ☑

Masters ☐

PhD ☐

DECLARATION OF ORIGINAL WORK

This declaration is made on the 26th day of June year 2015

Student's Declaration:

I KANG IN SIN, 36443 FSKPM

(PLEASE INDICATE NAME, MATRIC NO, AND FACULTY) hereby declare that the work entitled, A study on the working experience of left-handed employees with office workstation ergonomics at right-handed workplace in UNIMAS is my original work. I have not copied from any other students' work or from any other sources with the exception where due reference or acknowledgement is made explicitly in the text, nor has any part of the work been written for me by another person.

26/06/2015
Date submitted

KANG IN SIN (36443)
Name of the student (Matric No.)

Supervisor's Declaration:

I, ABDUL HALIM HASHIM (SUPERVISOR'S NAME), hereby certify that the work entitled, A study on the working experience of left-handed employees with office ergonomics at right-handed workplace in UNIMAS (TITLE) was prepared by the aforementioned or above mentioned student, and was submitted to the "FACULTY" as a * partial/full fulfillment for the conferment of Bachelor of Science with Honours (HRD) (PLEASE INDICATE THE DEGREE TITLE), and the aforementioned work, to the best of my knowledge, is the said student's work

Received for examination by: _____ Date: 25/06/2015
(Name of the supervisor)
Abdul Halim Hashim

I declare this Project/Thesis is classified as (Please tick (√)):

☐ **CONFIDENTIAL** (Contains confidential information under the Official Secret Act 1972)*
☐ **RESTRICTED** (Contains restricted information as specified by the organisation where research was done)*
☑ **OPEN ACCESS**

I declare this Project/Thesis is to be submitted to the Centre for Academic Information Services (CAIS) and uploaded into UNIMAS Institutional Repository (UNIMAS IR) (Please tick (√)):

☑ **YES**
☐ **NO**

Validation of Project/Thesis

I hereby duly affirmed with free consent and willingness declared that this said Project/Thesis shall be placed officially in the Centre for Academic Information Services with the abide interest and rights as follows:

- This Project/Thesis is the sole legal property of Universiti Malaysia Sarawak (UNIMAS).
- The Centre for Academic Information Services has the lawful right to make copies of the Project/Thesis for academic and research purposes only and not for other purposes.
- The Centre for Academic Information Services has the lawful right to digitize the content to be uploaded into Local Content Database.
- The Centre for Academic Information Services has the lawful right to make copies of the Project/Thesis if required for use by other parties for academic purposes or by other Higher Learning Institutes.
- No dispute or any claim shall arise from the student himself / herself neither a third party on this Project/Thesis once it becomes the sole property of UNIMAS.
- This Project/Thesis or any material, data and information related to it shall not be distributed, published or disclosed to any party by the student himself/herself without first obtaining approval from UNIMAS.

Student's signature _____ (25/06/15) (Date)

Supervisor's signature: _____ (Date) 25/6/15

Current Address:
Lot 5 Sec 48, Mukim Padang Bongor, 15400 Kota Bharu, Kelantan.

Notes: * If the Project/Thesis is **CONFIDENTIAL** or **RESTRICTED**, please attach together as annexure a letter from the organisation with the date of restriction indicated, and the reasons for the confidentiality and restriction.

[The instrument was prepared by The Centre for Academic Information Services]

The project entitled 'A Study On The Working Experience Of Left-handed Employees With Office Workstation Ergonomics At Right-handed Workplace In UNIMAS' was prepared by *Kang In Sin* and submitted to the Faculty of Cognitive Sciences and Human Development in partial fulfillment of the requirements for a Bachelor of Science with Honours (*Human Resource Development*)

Received for examination by:

(Sir Abdul Halim Hashim)

Date:

25/06/2015

Grade
A

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to Mr. Abdul Halim Hashim, my Final Year Project supervisor for providing necessary guidance, support and his patience in helping me to complete my research.

At the same time, I am also grateful to Centre for Academic Information Services (CAIS) for lending their hands in helping me to conduct my research interview with their staffs. Likewise, I would like to take this opportunity to express my sincere thanks to Faculty of Cognitive Sciences and Human Development for providing me an experience to conduct a research as well as assisting me in carrying out the research smoothly.

I also place on record, my deepest gratitude to my course mates and other related parties, who directly or indirectly, have offered their help in this venture. Without the help from all the above parties, it would be impossible for this research to be produced.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRAK

KAJIAN MENGENAI PENGALAMAN BEKERJA PENGGUNA TANGAN KIRI DENGAN ERGONOMIK STESEN KERJA PEJABAT DI TEMPAT KERJA DOMINAN TANGAN KANAN DI DALAM UNIMAS

Kang In Sin

Kajian kualitatif ini bertujuan untuk mengenalpasti pengalaman bekerja pengguna tangan kiri menggunakan peralatan dan kelengkapan khas untuk penggunaan tangan kanan dari segi masalah yang dihadapi, cara yang digunakan untuk mengatasi masalah tersebut, serta kriteria suasana bekerja yang selesa untuk pengguna tangan kiri. Kaedah persampelan berbentuk sampel bertujuan dan sampel bola salji manakala instrumen kajian ialah temubual yang telah dijalankan di Pusat Khidmat Maklumat Akademik (PKMA) UNIMAS ke atas empat informan yang terdiri daripada dua lelaki dan dua perempuan. Hasil kajian mendapati tidak ada perbezaan dari segi pengalaman bekerja di tempat dominan tangan kanan dan tiada unsur diskriminasi terhadap pekerja pengguna tangan kiri. Selain itu, analisa juga menunjukkan tahap kesedaran ergonomik dalam kalangan pekerja sangat rendah dan terdapat tanda-tanda penyakit Gangguan Otot Rangka atau *Musculoskeletal Disorders* yang dialami oleh informan kajian ini. Oleh yang demikian, dapat dirumuskan bahawa pekerja tangan kiri tidak mengalami diskriminasi di tempat bekerja dominan penggunaan tangan kanan dan penumpuan ergonomik di PKMA adalah sangat rendah.

ABSTRACT

A STUDY ON THE WORKING EXPERIENCE OF LEFT-HANDED EMPLOYEES WITH OFFICE WORKSTATION ERGONOMICS AT RIGHT-HANDED WORKPLACE IN UNIMAS

Kang In Sin

This qualitative study aims to explore the working experience of left-handed employees at the right-handed dominant workplace by using right-handed equipment and tools. This research also aims to identify the problems faced by left-handers when dealing with the tools, the means adopted and to overcome the issues and adapt to the workplace, as well as the good working environment criteria for left-handers. The population for this research is UNIMAS staffs and the sample are four informants from Centre of Academic Information Services (CAIS) using sampling methods of purposive and snowball sampling. The research instrument used is a face-to-face interview. The main findings are there is no difference in the working experience of left-handers at the right-handed workplace, the level of ergonomics awareness among informants are poor, and there are symptoms of MSDs among the informants. In conclusion, the left-handed employees in CAIS did not experience any discrimination at the workplace as indicated in past studies, and there is a serious need for ergonomics training and education among employees in UNIMAS.

CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter depicted the issues of this research in more details and research objectives are outlined as well as the research question parallel to objectives.

1.1 Background of the Study

According to Sommer and Kahn (2009), approximately 90% of the human population consists of right handed people while the remaining 10% belongs to left-handed people. Based on the information given by Department of Statistics Malaysia (2014), the current population of our nation reached 30 million on November 12, 2014. By applying the above statement, it is estimated that there are approximately 3 million left-handed people among us. The same probability might as well be applied to the workplace diversity whereby the majority of the employees would be right handed whereas only a small portion of them are left-handed dominant. It would also important to note that most of the products in the market are designed by right-handers for right handed people. This certainly includes office tools and

industrial machines provided by the company in the workplace setting of employees (Flatt, 2008).

1.2 Problem Statement

Left handed employees often faced difficulties while utilizing office tools in completing their tasks, such as a clerk, who is equipped with right handed keyboard and mouse, would find it awkward to type numbers as the numeric keypad is located at the right side of the keyboard. Due to the nature of the equipment provided by the company, which is right handed tools, left handed employees are often forced to switch to using the non-dominant hand. Switching to non-dominant hand may lead to the muscle twisting and injuries due to the wrong posture of body while using the equipment for eight (8) working hours.

Musculoskeletal disorder (MSDs) is the common health problem among office employees which occurs when they are exposed to a long period of ergonomic risk factors. This would affect the work efficiency and performance of this employee, lowering the productivity and would eventually affect the organizational performance (BLR, 2014). Uncomfortable office ergonomics will decrease employees' effectiveness as well as affecting their physical and mental health. Psychological health of left handed employees are affected in terms of self-esteem when they are not able to fulfill their job performance and the feeling of neglected by their employers (Flimel, 2012). Prolonged dissatisfaction towards workstation and job would lead to demotivation and depression, which often ends with employee turnover.

Employer often underestimates the importance of ergonomically design workplace especially for office workstation. This is because the rate of occupational accidents is lower at office compared to other workplaces such as manufacturing factory and construction site. Companies also tend to focus on enforcing safety policy and spending money on training program in hope to decrease occupational injuries which cost financial loss in terms of paying health insurance for victims, but most of the compensations are occupied by MSDs worker which is approximately RM 67 Billion per year (OSHA, 2000). Therefore, it is important to pay attention to the welfare of employees and provide a suitable working environment according to their necessity.

There are past researches done by academicians regarding the above issues, for instance, Yusra and M. Asir (2012) studied the experiences of left-handers dealing with right handed world; Coren (1989) researched the relationship between left-handedness and accident proneness; Flimel (2012) examined the ergonomic problems of left-handers in production activity. From all the studies, it is clearly depicted that to our current knowledge, there is no related research regarding left-handedness in office workplace especially in Malaysia. This research paper focusing on closing the knowledge gap by further looking at the aspects of left handed individual's feelings and difficulties while working in right-handed setup as well as the suitable ergonomically designed workstation to accommodate their individual differences.

1.3 Research Objectives

1.3.1 General Objectives

This research paper aims to study the working experience of left-handed employees with office workstation ergonomics at the right-handed workplace.

1.3.2 Specific Objectives

i. To explore the feelings of left-handed employees towards their workplace environment.

ii. To identify the problems encountered by left-handed employees in their workplace.

iii. To explain the means adopted by left-handed employees to adapt into a right-handed workplace with right-handed equipment and tools.

iv. To determine the good working environment criteria for left handed employees at their workplace.

1.4 Research Questions

i. What is your feeling to be a left-handed employee in the right-handed workplace?

ii. What are the problems you often faced with the equipment and tools in office?

iii. How do you cope with the right-handed equipment and tools?

iv. Can you describe your daily working life with your right-handed colleagues?

v. How do you feel about the differences between right-handers and left-handers?

vi. In your opinion, a good working environment for left-handed employees should have what necessary criteria?

1.5 Significance of the Study

Through this study, knowledge regarding office ergonomics for left handed employees can be enriched as well as identifying the type of difficulties encountered by left-handers during working which needed intense attention. Understanding regarding left-handed employees from their feelings and experience can help to clarify the common misunderstanding and stereotyping against them which often formed a barrier towards their career development and social networking inside an organization. Mutual understanding between co-workers builds trust and would improve team performance. Thus, highly performing workforce increases organizational effectiveness as a whole, which is very crucial in achieving organization's goals.

The result would as well provide guidelines to current organizations in terms of their practices and policy. Related HR practices might be manager can pay more attention to the welfare of left handed employees by supplying appropriate and suitable office equipment and tools for their usage and Recruitment and Selection Department can assigned compatible job position to left-handers by considering their unique characteristic, capabilities, and conditions. Organization policy should be amended to accommodate left handed employees by providing ergonomically designed workstation emphasizing on the handedness of employees and create a safe healthy working environment for workers.

1.6 Limitations of the Study

This research is conducted in Malaysia, an Asian country, whereby the result may not be applicable to worldwide due to cultural differences and demographic background of the sample. Furthermore, the time frame given to complete this research is too limited and short. Noted that this research focuses on education sector and the result might not be the same for other industry.

1.7 Definitions of Terms

1.7.1 Ergonomics

Conceptual definition:

"Ergonomics is the science of designing the job to fit the worker, rather than physically forcing the worker's body to fit the job" (OSHA, 2000).

Operational definition:

It is a disciplinary study focusing on creating a job compatible to employees but not the other way round.

1.7.2 Left-handedness

Conceptual definition:

"Left-handedness has been defined as loosely as some use of the LH for some task, and as stringently as strong and consistent LH preferences for writing and several other unimanual task" (Herron, 1980, pg. 83).

Operational definition:

Left-handedness is the tendency of using the left hand to do a simple task which require only one side of the hand.

1.7.3 Equipment

Conceptual definition:

"Equipment means a thing used to equip workers at a work site and includes tools, supplies, machinery, instruments and sanitary facilities" (Government of Alberta, 2009, pg. 9).

Operational definition:

Equipment is a device used to help employees to complete their job task.

1.7.4 Hand tool

Conceptual definition:

"Hand tool means hand-held equipment that depends on the energy of the worker for its direct effect and does not have a pneumatic, hydraulic, electrical or chemical energy source for its operation" (Government of Alberta, 2009, pg.11).

Operational definition:

The hand tool is an instrument used manually by employees with one hand to complete their work.

1.8 Summary

In conclusion, this study will focus on the left handed employees in the workplace as well as the suitable ergonomics which are required to be fulfilled in securing their welfare. Research objectives are listed to help direct the study in the correct course and research questions are formulated according to those specific objectives. The significant and limitations of the study are identified and explained in details, with definition of several terms as an ending of this chapter.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter outlines the related issues corresponding to left-handedness, ergonomics and right handed workplace by further examining past studies done by other researchers which is connected to the issues. Then, relevant theories with the appropriate theoretical framework that are applicable in this study are identified and discussed in details. Finally, a discussion based on the findings from past studies is carried out to relate each outcome with the research problem of this paper.

2.1.0 Issues

2.1.1 Biased Against Left-handers

It might be a surprise to hear that left-handers actually experience bias in their daily life since early ages, ranging from school until workplace. Bias, in psychology definition, termed as preconception towards a group of individuals with similar traits or characteristics and treated them with unfair demeanour which undervalues their rights and necessity (Fiske,

Gilbert, & Lindzey, 2010). Two types of bias are experienced by left-handers, namely explicit bias and implicit bias. Explicit bias is a conscious prejudice behaviour which is intentional while implicit bias is an unconscious prejudice behaviour which is not intentional. Explicit bias is very common during old ages and decreases as time flows, but implicit bias still exist in the modern era.

In early centuries, left side is associated with negative meanings and bad impression especially in religion and language aspects (Read & Klarner, 2012). Religion in western countries such as Christian shows that Jesus held sheep that will enter heaven in his right hand while the sheep that will fall into hell is placed in his left hand (Grimshaw & Wilson, 2013). Western artwork often draws devil with left-hand side signifying left as a symbol for evil as it was rumoured that Devil administer baptism to his followers using the left hand (Yusra & M. Asir, 2012). In terms of language, the French word for left is *gauche*, which means awkward and clumsy while in Romanian, left is termed as *bongo*, which is translated to crooked and evil (Oester, 1998). Due to the severe anti-left handed prejudice, the number of left-handers in the 70s dropped to a lower percentage as social stigma influenced the perception of people towards left-handedness.

Left-handers were stigmatized during their childhood especially in school whereby the teachers forced them to write with the right hand and even used violence to threaten left-handers children into conform with their teaching methods. This causes the children to experience trauma which may hinder their learning process in early ages as well as leading to psychological disorders such as depression and anxiety. Left handed children who gone through this social stigma often developed personality of low self-esteem and tend to isolate themselves from right-handers in their adulthood if they are not able to adapt to the environmental stress (Yusra & M. Asir, 2012).

Luckily, in modern days, social stigma had declined significantly whereby the stigmatization in the educational system had been eliminated as people started to be open-minded towards diversity due to globalization factor. Instead of discriminating left-handed children, current teachers are more concerned over teaching these students to write in comfortable posture by using appropriate tools. According to Brackenridge and Levy, this culture changing situation leads to an increase in the number of left-handers in 1980 which is around 12% higher compared to previous decades (as cited in Grimshaw & Wilson, 2013).

Owing to its nature of being unconscious and not easily detected, implicit bias is still ongoing although explicit bias had diminished in modern culture (Grimshaw & Wilson, 2013). Example for this type of prejudice is the discrimination in terms of the design for equipment and tools. Ranging from essential tools until office equipment, all these inventions are only created for right handed users whereby it would be awkward for left-handed people to use them. In attempting to comply with the tools, left-handers often tried to adapt their hand with uncomfortable posture and put their safety only one step from the danger zone. The failure to adapt to the equipment usage causes left-handers to be labelled as clumsy, slow learners, and incapable. It is actually due to the inappropriate ergonomics design of tools, which is not related to left-handers' competency. It's the same result if right handed people were to use the tools in their left hand, they would felt difficult and awkward not because it was not their dominant hand, but because of the wrong design of equipment.

2.1.2 Limited Left-handed Equipment and Tools

Most of the inventions in our world are created by right handed people (Denny & O' Sullivan, 2007), therefore, assumption can be made in such a way that the probability of the resulted creation is also suitable for right-handed users only. As the technology advances in high pace, it is thought that the creation of left-handed equipment and tools should also be aligned to the dynamic of advanced technology pace, but it did not happen. Left-handed tools still have no progress in terms of production and improvements which leads the majority of left-handers to question about the role of designers and engineers in manufacturing sectors.

Office equipment and tools for left-handers are available in scarce amount although there are manufacturers who did produce tools according to handedness characteristics. For example, scissors, pens, paper cutting blade, keyboard, mouse, printing machines and working desk. This equipment is ergonomically design to match the needs of left-handers in hoping to provide the best comfort level and increase the productivity of workers (Anger & Heineck, 2014). But employers often neglected the needs of this minority group while designing the workplace setting for job incumbents.

Some employers did pay attention towards left-handed employees by supplying the correct handedness tools and equipment within the organization workplace set up to ensure left-handers get the rights they deserved as the members of the particular organization. But the problem next occurring problem is with the availability of stock from manufacturing

company. Now, what happened is that the manufacturer decided to stop or restrict the production of left handed tools.

There are several reasons which cause the above-taken action, first of all, it is due to production cost. This is the main reason which affects the line of production. For example, Logitech's representative revealed that the expenses from producing left handed ergonomics mouse are higher than normal mouse as the inner components needs a total remaking of planning design into mirror image of right handed mouse, which is not an easy task for the production team to solve (Frakes, 2006).

But, there are companies which produce very expensive products such as genuine diamond phone cases just to satisfy consumer's pleasure, and it is not a functional item in the first place. Logitech representative responded to the statement by explaining that compared to the consumers for other products, the targeted buyers for left handed tools are only 10% of the population of the world (Frakes, 2006). Given the population for the world is roughly 7 billion people, only 70 million left-handers would buy the item, and note that not all countries in the world have access to Logitech's products.

Furthermore, a recent survey conducted by Logitech shows that some left-handers actually uses right-handed mouse, which further decreases the actual market for left-handed mouse (Frakes, 2006). This may be caused by the working environment of left handed employees which is right handed centred that causes left-handers to adapt by using right handed mouse in completing their tasks. Left-handers who already experienced long period of working in right-handed setting would no longer need left handed tools or equipment supply and some prefer to use right handed mouse just to keep their dominant left hand doing other tasks as multitasking increases productivity (Peters & Ivanoff, 1999).

Therefore, it is clearly shown that manufacturing companies are still not taking left handed as a factor in designing their products due to the high cost of mirroring process and low consumer market of left-handers. This leads to the limited supply of left-handed tools and equipment in the market which can be used as an excuse by employers in not providing ergonomically designed tools for left-handers.

2.1.3 Employer's Unattended Office Ergonomics for Left-handers

It is common that companies did not give much attention to office ergonomics compared to outside workstation such as construction site or manufacturing factory. It may be due to the fact that office has less occupational accidents compared to other workstation, therefore employers thought they can skip office ergonomics in intention to reduce redesigning cost (Brand, 2008). Besides, handedness is often neglected while designing workplace as the majority of workers are right handed employees, which diminishes the needs of left-handers in equipment and tools.

When the provided tools are not appropriate, left-handers tends to use them by either holding the tools backwards with left hand which is awkward and dangerous or by using the tools with their non-dominant right hand, but the position is still uncomfortable and difficult to use (Jensen et al., 1998). This causes the productivity of left-handers to drop significantly and portrayed an image of clumsy and ineffective towards right-handed colleagues. Wrong posture in utilizing the right handed equipment may cause musculoskeletal disorders (MSDs), whereby the soft muscle tissues and nervous system are injured or damaged, especially around the back and arm of body (Mahmud, Kenny, & Heard, 2011). In severe cases, employees might suffer permanent disabilities which hinder them from returning to their jobs.

Some of the equipment and tools which needed attention are the keyboard, mouse, pen, and spiral notebook. For keyboard, the best design for left-handers is QWERTY keyboard layout whereby the numerical numbers are listed across the keyboard with majority of words are located at the left side of the keyboard (Laeng & Park, 1999). Another alternative is to provide a detachable or separable numerical keyboard which can be placed at left side of the left-handers without having them to awkwardly moving their left hand across the keyboard just to key in numbers (Brand, 2008). This reduces the probability of strained joints and muscles as well as improving the productivity of left-handers.

Besides, a left handed mouse is also considered necessary to be supplied to left-handers as the right handed mouse had its left and right click reversed for left handed users. Although the advanced of technology made the setting of both clicks interchange possible through properties in device setting, the ergonomics of right handed is not the same as left handed. Therefore, employers still need to change the suitable mouse for left-handers. Stationery such as pens and the spiral notebook also has its own design to suit the left-handedness, as well as the position of the desk phone and desk design.

Ergonomics is very important in determining the quality and productivity of employees, which includes left-handers as well (Korhan & Amir, 2011). But companies often overlooked at this important principles and spending money on paying employees' health insurance which cost more than ergonomics. From employer's point of view, ergonomics is seen as an economic burden and this opinion hinders the improvements of office workstation ergonomics (Ranasinghe et al., 2011).

2.1.4 Increasing Cases of Musculoskeletal Disorders (MSD) among Office Employees

According to Veitch, Charles, Farley and Newsham (2007), among world's working population, at least 50% of the employees are currently working in office setting (as cited in Brand, 2008). In the past twenty years, the number of employees working with Visual Display Units (VDU) has soared up sharply (Wahlstrom, 2005). Rising in the number of employees working with computer directly increases the Musculoskeletal Disorders (MSD) cases among these office job incumbents (Halford & Cohen, 2003). MSD is mainly caused by repetitive activities, heavy load lifting and awkward working posture practices by employees while completing their job tasks (Korhan & Amir, 2011).

Tan Sri Lee Lam Thye, the chairman of National Institute of Occupational Safety and Health (NIOSH) stated that cases of MSD are increasing in industrialized countries including Malaysia (Boon, 2013). It is the most common occupational injuries suffered by office employees (Korhan & Amir, 2011). Based on Social Security Organization's (SOCSO) data, the number of work-related MSD rises from 15 cases in 2006 to 449 cases in 2012 (Boon, 2013). This upward trend has created financial impact as MSD causes temporary or permanent disability to employees which required high cost of treatment and compensation benefits expenses.

2.2.0 Theories Related to the Studies

2.2.1 Handedness and Lateralization

Lateralization is the specialization of brain hemisphere in certain functions (Sommer, 2004). The human brain is divided into the left hemisphere and right hemisphere. Both