

The Impact of effective work design and ergonomics on employee's productivity in higher education institutions in Pretoria East, Gauteng

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Abstract

The purpose of the study is to investigate and uncover the impact work design and ergonomics have on employee productivity in an academic working environment. Human beings have been working since the beginning of time and work has evolved and transformed since. Now we are in the fourth industrial revolution and the employment sector is still in transformation. Humans are either negatively or positively impacted by the job they engage in on a daily basis and this research aims to unravel whether that impact negative or positive does it increase or decrease employee productivity in the workplace and in an environment of academia. The study also aims to suggest solutions on how to improve work design and ergonomics in an academic environment and to recommend possible strategies on how employee can perform better given the proper working conditions and work design. The Labour relations act, occupational health and safety act and the basic conditions of employment act provides employees and employers in the 21st century guidelines, rules and laws on how the employment sector should run nowadays but the research study aims to unravel whether these acts are being followed thoroughly or not and if employers are adhering to these laws which inevitably if adhered to product happier workers and healthier workers with no back pain and spine problems due to incorrect working conditions.

1.1 Introduction

According to Paladino (2011) Human factors are defined as the study that describes human behavior psychologically and physically when affected by certain conditions, environments, products and services. This illustrates that human beings react differently to different situations in which they encounter on a daily basis Ivancevich & Matteson (2002). Human beings have been exposed to working since the world was created. Working has advanced and changed since the evolution and involvement of industries until now where we are in the fourth industrial revolution (Industry 4.0). According to Bersin (2008) working dynamics include repetitive work/tasks, bending, carrying, lifting and doing manual duties. These duties are repetitive, constant, and required to be done on a daily basis. These tasks have an impact on a human beings body and this impact leads to the channeling of a human life whether to a negative or positive direction in their health. Working conditions have changed since decades ago. Companies started out by managing people as machines that produce goods and services for them without any consideration on how the high standards and strenuous working conditions affected their employees. By that time industries in which people could work was in factories and mines. Companies motivated their employees by promising to pay them more if they worked more than the already high working standard. This tactic worked for a while but soon employees were being negatively affected by the horrific working conditions, the uncleanness, the pollution and toxins in the atmosphere and around their workplace. This soon led to rebellion and demotivation and employees realized this and were obligated to change their strategies because the more demotivated employees were they were influencing each other and also affecting production because they were no longer performing to the required standard. Fleisher & Bensoussan (2008). The industry and employment relations then transformed into human relations management where employers now introduced four factors that they implemented to help correct the problem that had penetrated into their employees. Companies now said employees were entitled to

1. Clean working conditions
2. Relationships with their managers
3. To having a say in the decision making process in the company and,
4. To having professional relations with each other

According to Garg & Venkatarishhan (2011) this tactic also worked for a while and evolved even further when human resources came into being. Human resources now came with the strategy of saying human beings are not production machines, they are an investment that when handled and managed well can be a long term investment to the company, Mathis et al (2008). Human resources also came with a strategy of saying organizational goals should be aligned with employee goals and if it be so employee would inevitably be self-motivated and hard working at the workplace. Employment relations officers would arrange a meeting with staff members on a one-on-one meeting where they would discuss the employees plans and desires for the future and there after align those plans with what the current duties of the employee, for example an employee working in the accounts department, the company may suggest enrolling the employee on a degree course and paying for all study expenses but the employee is then obligated to work in the organization and added 4 years after completing their qualification and also the qualification must be in line with the current responsibility and department of the employee that is in this case the employee is in the finance department and thus the degree is an accounting degree for example. In an environment like the finance department a significant amount of time is spent by the employee working on a computer, sitting on a chair, concentrating for hours on end and carrying boxes on a daily basis Lund & Barksdale (2001). Human factors states that humans are affected by continuous repetitive work in which they engage in and thus measures should be taken into account to ensure that the employee does not end up accounting health problems and illness in the future due to the work they engage in daily. In this case measures should be taken by the company to ensure that the employee in the finance department is protected from the glare from the computer, the chair is properly aligned with the desk, and the mouse is in proper working order and in the right position. The chair should provide correct back support so that the spine of the employee is not affected, Heracleous (2003).

2. Literature review

2.1 Introduction

According to venter and levy (2014) an employee's working time in an organization is divided into thirteen categories, in accordance with the basic conditions of employment act 75 of 1997 these are namely:

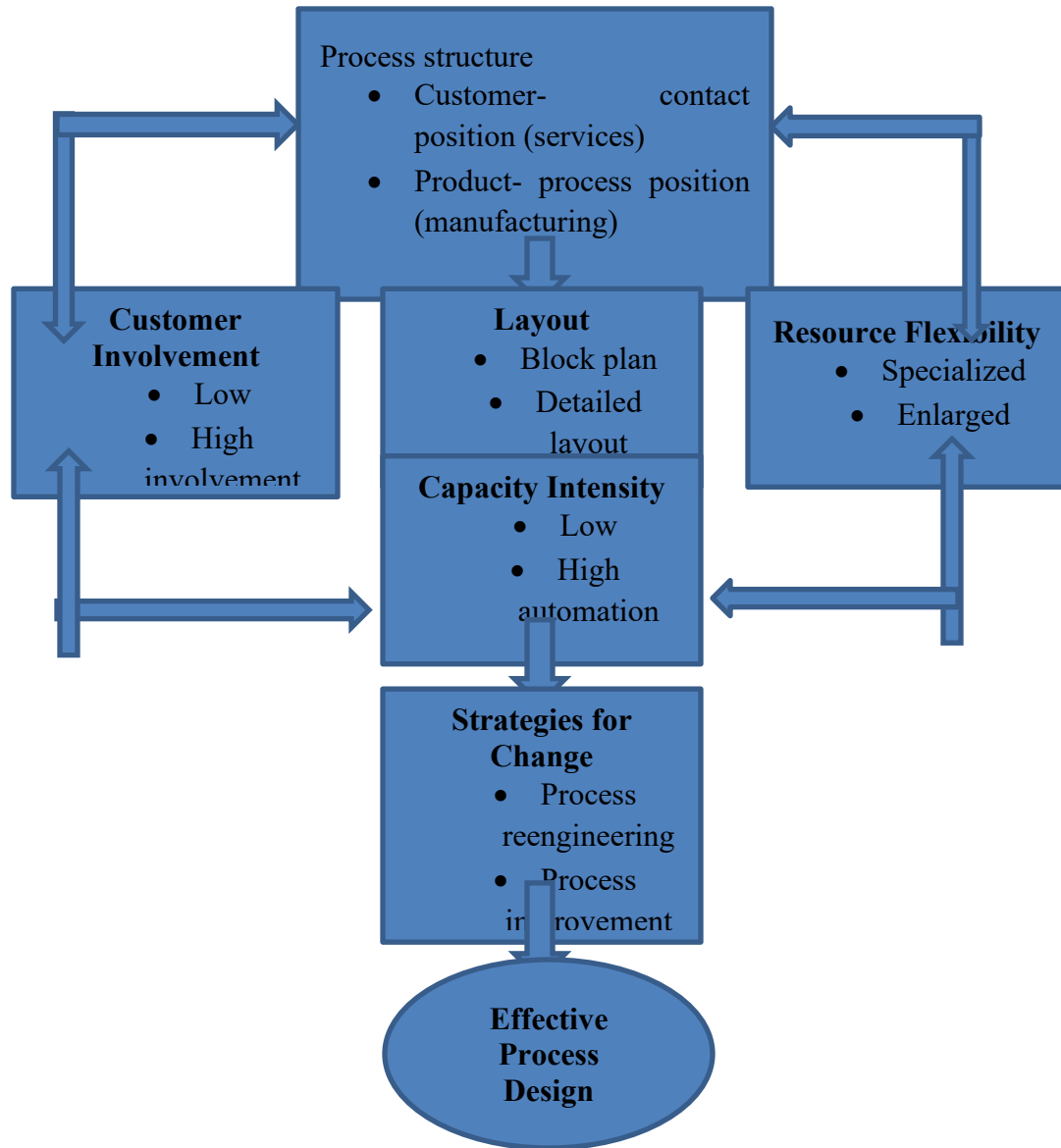
1. Ordinary hours of work (Section 9)
2. Overtime (Section 10)
3. Extended ordinary daily hours of work(Section 11)
4. Averaging hours of work(Section 12)
5. Determining of hours of work by the minister(Section 13)
6. Meal intervals(Section 14)
7. Daily and weekly rest periods(Section 15)
8. Pay for work on Sundays(Section 16)
9. Night work(Section 17)
10. Public holidays (Section 18)
11. Exclusions
12. Emergency work

According to Bell (2002) These working categories define different working times and the obligation to the employer to ensure that the health and safety of the employees is a primary concern and that no danger is encountered by the employee due in correct working times and procedures at the work place. The time in which an employee spends at work has an great impact on how the employee feels and how their overall health is in a holistic point of view. According to the basic conditions of employment act employees are required to work an average of eight hours a day however in industries such as the hospitality industry these hours are generally stretched to far more due to the nature of the business being a 24 hour business that is generally very fast paced and customer centric which means the guest/customer is king if they leave the restaurant late the waiter is required to be patient and wait for the customer and not chase them out.

A waiter in a busy restaurant in a five star hotels generally works long hours and is standing, walking , serving, cleaning, bending and carrying heavy plates and other things in the shift on a daily basis. High levels of fatigue is experienced in such industries and thus measures of ensuring correct ergonomics in such industries and working conditions is imperative Grant & Jordan (2012).

2.2 Effective Process Design

According to Krajewski et al (2016) a layout is a design/physical set up of operations arranged relative to each other in order to create a proper follow in the production process. An effective process design includes process structure that focuses on customer-contact position (the service point) and product- process position (the manufacturing of the product), the layout that is the block plan and detailed layout, the customer involvement which includes high and low customer involvement, resource flexibility that is specialized and enlarged and capacity intensity that is low and high automation and lastly, strategies for change which is process reengineering and process improvement. This process states that all these aspects are to be considered when planning for the process design and ensuring it effectiveness.



Source adapted from: Krajewski et al (2016: 71)

Work design is crucial in relation to output that is how effect employees become in the workplace. How the operational area is arranged is crucial and should be arranged in a way which helps the production process to be systematic and flow from beginning stage to final end/presentation to customers. Over and above the arrangement and design of the operational area, it must also adhere to the occupational health and safety amendment act 181 of 1993 and that includes ergonomic requirements that companies are compelled to adhere to with regards to ensuring that employees doing a job in the business are not in danger of chronic illnesses due to the work they are doing.

Fast food outlets have mastered the correct positioning and design of their operational area example Mc Donald has a working space which allows production of food/burgers to flows systematically until end point which is customer delivery point, Grant (2002).

2.3 Working in the academic environment in higher education institutions

According to Wisniewski (2002) Staff/employees working in universities are people working in a highly pressured environment dealing with marks, students, deadlines, marking, exam etc. Employees working in this environment are divided into two major categories. These are:

1. Academic and,
2. Support staff

Academic staff prepare lectures, set tests and exams, mark tests and exams, set and mark assignments and continuous assessment exercises, facilitate lectures, assist at risk students with extra consultation out of the classroom, capture marks, assist in graduations and are expected to work and perform in this high pressure. Academic employees are also expected to write journals, articles, books and contribute to the body of knowledge and this requires long hours of thinking, sitting and working with a computer. Work design to an academic employee means more than just ensuring that the photocopy machine is at a proper position that will not strain the employee in walking and lifting up boxes of paper to fill the machine. It also means correct chairs that support their back when writing material for publications, it also means computers that assist with glare, and it means more flexibility so that the employee is not overwhelmed. Harvard Business School (2005)

According to Nel et al (2014) Support staffs working in universities do various duties depending on the department in which they are employed in. the duties range generally from making copies to filing to typing letters to students, answering the telephone, handling prospective, handling parents etc. Morris (2001) These duties require staff to work with large amounts of students at a fast pace depending on the universities for example during enrolment seasons staff have to do administrative duties for more than forty thousand students which means that period has great strain on the employee and high productivity is required. Thus correct measures should be taken by the employer to ensure that proper health and safety measures are in place so that employees are not negatively affected because this will inevitably affect the productivity or work performance of the employee. Whetten (2002)

3. Methodology

The study was done using the mix method approach. (Qualitative and Quantitative research methods) interviews with academic staff in higher institutions of higher education and also survey questionnaires were distributed in order to establish the findings mentioned below.

The sample in which the research was conducted is in Pretoria east. University employees were interviewed and questionnaires were distributed and the findings are as follows.

4. Findings / results

The research study was completed using survey questionnaires that were sent out throughout the township of Tembisa because the research was focusing on Tembisa Township as its limitation. Respondents were selected using random and convenience sampling methods due to the busy schedules of business owner and managers it was not possible to always find them so convenience sampling was used and 160 (one hundred and sixty) respondents completed the survey questionnaire. These were business owners and managers in the enterprise.

The findings were as follows:

4.1 Ethnicity

Table 4.1.1

DESCRIPTIVES	FREQUENCY	PERCENTAGE
GENDER		

Male	18	36
Female	32	64
Total	50	100

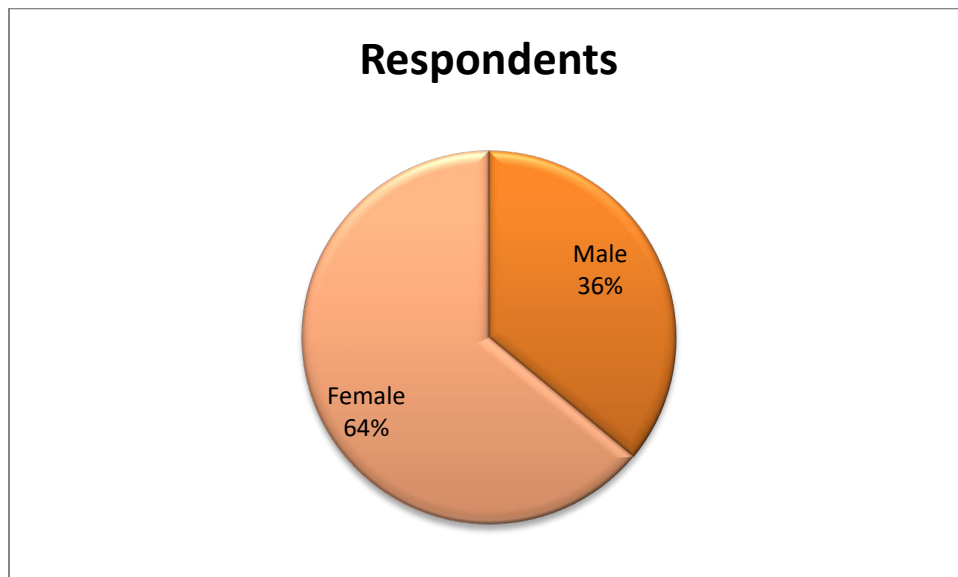


Figure 4.1

The research study findings indicate that 64 per cent of people working in higher education institutions in Pretoria east are females while only 36 per cent are male. This means the dominating gender in this sample study was female.

4.2 Country of origin

Table 2.1.1

DESCRIPTIVES	FREQUENCY	PERCENTAGE
COUNTRY OF ORIGIN		
South Africa	31	62
Botswana	2	4
Zimbabwe	11	22
Lesotho	3	6
Other	3	6
Total	50	100

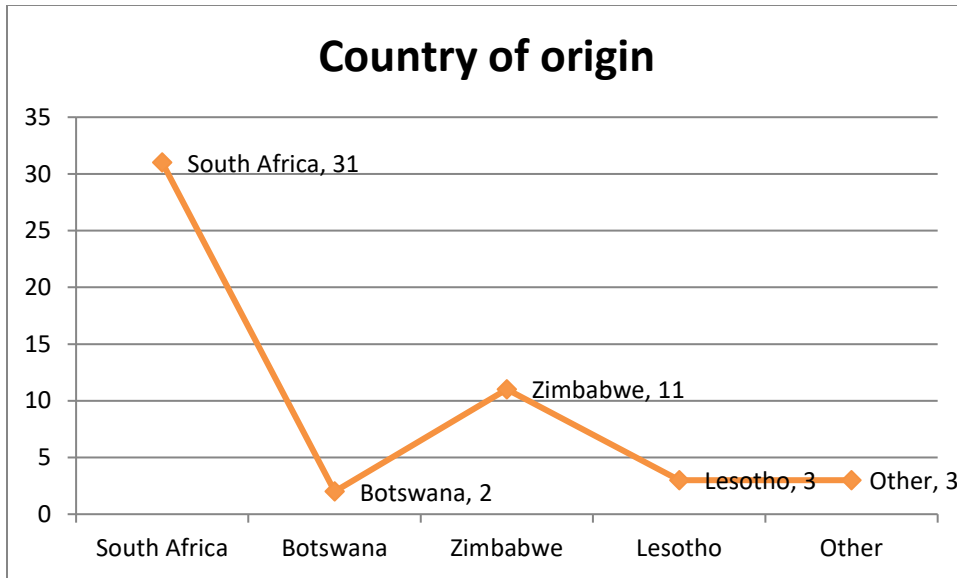


Figure 4.2

The graph above indicates that the country of origin of people working in higher education institutions in Pretoria east are as follows: 62 per cent is South African followed by 22 per cent which is Zimbabwean, 6 per cent which is people working in higher education institutions in Pretoria east who originate from Lesotho and other and lastly 4 per cent coming from Botswana.

4.3 Highest level of qualification

Table 4.3.1

DESCRIPTIVES	FREQUENCY	PERCENTAGE
HIGHEST EDUCATIONAL QUALIFICATION		
Matric	2	4
National Diploma	3	6
Bachelor's degree	9	18
Post graduate degree	36	72
Total	50	100

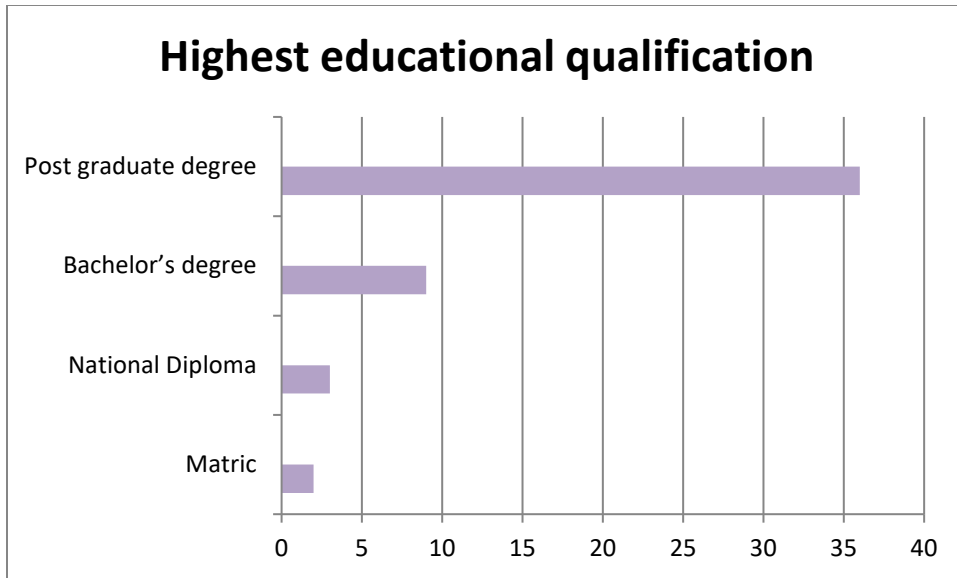


Figure 4.3

The graph above indicates that educational qualification of people working in higher education institutions in Pretoria east. 4 per cent have Matric level pass (Grade 12). 6 per cent have a formal National Diploma. followed by 18 per cent indicated that they have acquired higher education and training and they obtained bachelor's degrees and 36 per cent stated they have post graduate degrees.

4.4 Chair at work

Table 4.4.1

DESCRIPTION	FREQUENCY	PERCENTAGE
CHAIR AT WORK		
Not comfortable	29	58
Comfortable	21	42
Total	50	100

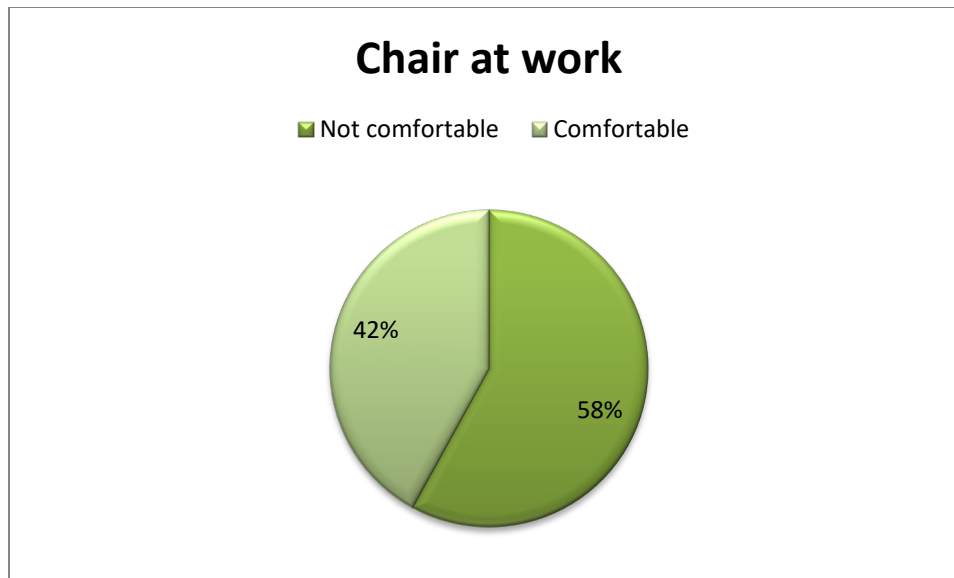


Figure 4.4

The research study findings indicate that 42 per cent of people working in higher education institutions in Pretoria east are felt the chairs they sit on at work are comfortable while only 58 per cent stated that they felt their chairs were uncomfortable and did not give their backs full support. This means that most employees that answered the questionnaire for the sample study believed that the chair they used at work was not satisfactory and not useful for their backs and arms.

5. Conclusions and Recommendations

The research findings indicate that much more efforts are to be put in supporting employees working in the higher education institutions with regards to ergonomics and work design. The research also uncovered that there is indeed a relationship between proper work design and ergonomics and employee productivity. Proper work design and ergonomics help motivate employee because they are working comfortably and thus more work performance is achieved but if there is incorrect and improper ergonomics and work design inevitably less productivity and more absenteeism is the result. Recommendation is employers in higher education institutions must ensure that health and safety check and done and improvement of work design and ergonomics is done on a continuous and constant basis in order to manage the employee work demands and to support the employee.

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7. Biographies

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