

# Chapter 18

## Towards Reducing Common Ergonomic Hazards and Alleviating Techno–Stress Associated with the Adoption of Information and Communication Technology

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### ABSTRACT

*The paper examines how to alleviate ergonomic hazard and techno-stress associated with the adoption of Information and Communication Technology (ICT). The University of Botswana was used as a case study. Personal observation and interviews were used to elicit information from the staff and students of the University. The rate of adoption of ICT was very high in the University. Most daily routines of academic and administrative duties were done through the Webct and network connection to mopipi.ub.bw. However, a serious gap was discovered in ergonomic practices because design of workstations did not perfectly match the standard expected to facilitate functionality and usability. It is imperative for the university to adopt the provisions of occupational health and safety policy to harmonize the environment, tools, and workers to achieve maximum efficiency and optimal performance.*

### INTRODUCTION

Technology has become the integral part of work place and affects human resources from the operational up to the strategic levels of modern organizations. Its dramatic and liberating benefits especially as relate to the quest for fast response

time, accuracy, and ability to resolve complex problems have made it attractive for gaining commanding share of market and mustering global competitive strength. Technology comes with the pressure and high performance expectations from the employees who are equipped with relevant materials. Employees are able to get connected

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anywhere and anytime. Offices are infested with telecommunication gadgets such as fax machines, computers and mobile phones. It is obvious that technology will continue to co-exist with human resources in the organizations.

As organizations adopt technological innovations for competitiveness in the knowledge based economy, the need to maintain an optimal balance between the utilization of the attractive features of ICT and ensuring human needs for safe and efficient working conditions have become a phenomenon in modern public and business organizations. Making the work easier and more interesting by introducing tools that are user-friendly and capable of increasing productivity are not without attendant risks and problems. Having access to these devices enables work to be done regardless of time and location but unfortunately intrude into the privacy and rest of employees and may eventually lead to stress, health challenge and low level of performance. The adoption of ICT to make work more interesting and increase productivity has thus been marked with attendant risks and problems.

Noyes (2001) discovers an increase in sick people caused by ergonomic hazards resulting from ICT equipments. People who use computers extensively could have musculoskeletal disorder and are also prone to carpal-tunnel syndrome, eyestrain and headaches. He raises concern that all these might reduce motivation and performance. Pribbenow (1990) points out that those who are glued to computers in offices could experience high level of tension, both in blood vessels and muscles. All these are the challenges that good ergonomic practices attempt to address.

## **LITERATURE REVIEW**

### **Ergonomics**

The focus of ergonomics is on the design of workstation that recognizes and accommodates

a variety of human capabilities and limitations in a manner that reduces the potential disorders in order to motivate workers to put in their best performance. O'Brien and Marakas (2007) refer to Ergonomics as human factors engineering with the goal of designing healthy work environments that are safe, comfortable, and pleasant for people to work in. Its designs are to increase employees' morale and productivity. It seeks to improve the match between the job and the man's physical abilities, information handling and workload capacities. The general understanding of physical ergonomics is that people come in all shapes and sizes and the average workstation configuration will not fit everyone (Soopu, 2009). Kroemer (2006) defines ergonomics as the applications of scientific principles, methods and data drawn to design the workstation so as to make computer users' life and performance of task safer, efficient and easy to use. Helander (2006) quoting Karwowski (1999) pointed out that ergonomic was derived from two Greek words ergo (work) and nomos (law). He advises that ergonomics, a scientific discipline that tries to describe the interactions between human beings and computers, should follow the laws and principles governing the design of the machine and workstation in order to optimize human well-being and overall system performance. Similarly, Santon (2005) agrees that as a scientific discipline, ergonomics holds high moral ground with the aim of improving human performance, safety and satisfaction of job by providing compatibility of the computer users, workstations and the correct knowledge of how to use in the safe side for better performance. Brauer (2006) states that it addresses the ability of people to perform task, make pretences and choices which are important in marketing. From these definitions, one could infer that the focus of ergonomics is on how to design work environment to optimize human well-being and overall system performance.

Some scholars contend that ergonomics is concerned with fitting the job to the worker rather than

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