THE ROLE OF ERGONOMICS TOWARDS PERFORMANCE IMPROVEMENT

Kem Ramdass[1], Leon Pretorius[2],

[1]Post Graduate student, Faculty of Engineering and the Built Environment, University of Johannesburg, Kingsway, Auckland Park, South Africa

[2]Professor, Graduate school of Technology Management, University of Pretoria, South Africa

ABSTRACT

A call centre is of strategic importance to an organisation and therefore needs to be developed with ergonomics in mind. Call centre managers' need to be trained in the field of ergonomics, so that an ergonomic "changeover" takes place to improve the workplace. Call centre agents are the lifeblood of the call center, and efficient managers need to do everything in their power to maintain a competitive workforce. The creation of worker friendly environment boosts the morale of the workforce, thereby reducing turnover and attracting professional agents. The issue of labour efficiency and productivity need to be addressed with the application of ergonomic principles which contribute process improvement. The result would be a reduction in absenteeism and worker's compensation claims as it is approximately ten million per year (www.statsa.org.za). Musculoskeletal disorders (MSDs) such as carpel tunnel syndrome arise from poor ergonomic practices. Thus, the focus of this article is to promote the application of ergonomic practices in the administrative environment with a view of improving worker health and safety while improving productivity.

Keywords: ergonomics, office, productivity improvement, call centre

INTRODUCTION TO ERGONOMICS

Ergonomics is derived from two Greek words: ergon, meaning work, and nomoi, meaning natural laws, to create a word that means the science of work and a person's relationship to that work (www.system-concepts.com).

The International Ergonomics Association has adopted this technical definition: ergonomics (or human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance (Stevenson, 2007).

AIM AND OBJECTIVES

The aim of this article is to provide an overview of ergonomic practices in the administrative call centre environment and to create an understanding of how simple changes could improve the health and safety of the workforce while also enhancing productivity in the organisation. The following objectives will be served by the study:

- Observation of problems relating to ergonomics at workplaces.
- Development of a process improvement framework that would serve as a benchmark for the application of ergonomics.

METHODOLOGY

The research comprised a qualitative exploratory and descriptive design. The purpose of the exploration was to report the current phenomenon of ergonomics through systematic observation (Cooper and Schindler, 2006). Personal interviews, questionnaires and direct observation were used to gain insight into problems caused by poor ergonomic design. Observation of task performance was acquired; both to document worker technique and worker interaction with their

workstation as well as to provide examples that can be used during training (if training is pursued as an intervention). Operators were spoken to, to obtain a general consensus on the problems experienced during the performance of the job.

LITERATURE REVIEW

Branton in 1993 has moved away from the contemporary views of ergonomics and has concentrated his efforts on the most important variable, people. He realised that people at work bring unique characteristics to the system, which no machine would ever hope to match. By recognising the employees' sense of flexibility and responsibility at their work, he believes that people can make the difference. Therefore he created a 'person centred' view that would enable action in the workplace .The researcher is in full support as without people, ergonomics would not happen, and continuous training is the key factor that South Africa lacks.

Haslegrave in 1990 indicated that ergonomics would improve the variables of safety, quality, and productivity. In the publication "Work design in practice" a number of case studies by different authors have been compiled in different industries. The variables covered ranged from ergonomic planning of industrial plants, problems addressed in the workplace and an ergonomic workplace design. The case studies outline the reality of situations in industry.

"A guide to the ergonomics of manufacturing" provides an in-depth evaluation of ergonomics and the way in which it can enhance the variables of productivity, safety and job satisfaction. The difference is the focus on job satisfaction, which is of prime importance to all human interventions. Job satisfaction is a major contributor of a motivated workforce, which in turn improves productivity. Helander in 1995 explains the many ways in which ergonomics can support and improve human work. It grounds these ideas in real-life situations. This information is applicable to a variety of industries including its general applicability to the administrative industry.

The "applied ergonomics handbook" by Galer (1989) has drawn a number of experts from the field of ergonomics and discussed the variables of design of displays, controls and workplaces, the layout of workplace and issues in the working environment including climate, noise, vibration, vision and lighting. The researcher is in agreement with the information, but the limitation is its application to the administrative environment.

According to Fleming in Allnoch (1997), "improve a worker's comfort level, and you improve the company's productivity level." Ergonomics is designing things better, or integrating better work methods, work practices, and equipment to humans. He feels that industrial engineers have spent a lot of time on materials, on the process, and on the machinery side, but they've not thought enough about the human and how the human functions. The researcher is in total agreement with this situation due to his exposure in the field of ergonomics.

The literature review evaluates ergonomics and its application to industry in general. It covers a broad spectrum of variables that concentrate on a more industrialised environment. The researcher would like to focus on the administrative environment.

According to Alexander (1985) typical losses from the failure to apply constructive ergonomics include:

- Lower production output
- Increased lost time
- Higher medical and material costs
- Increased absenteeism
- Low-quality work

- Injuries, strains, fatigue
- Increased incidence of accidents and errors
- Increased labour turnover
- Less spare capacity to deal with emergencies
- Reduced productivity
- Reduced competitiveness

Ergonomics will make a difference if implemented constructively. It has to be a team effort by both management and operatives.

The negative impact of autocratic management

The autocratic style of management is a recipe for under-performance of organisations. South African managers need to be re-skilled in dealing with people and tap into the potential that resides in their people. Currently, there is a huge gap in organisations' values and how they act. This can be remedied by:

- Reviewing the organisation culture and values; and
- Re-skilling people to enable them to 'do' what the culture calls for.

This would result in congruency between values and actions and would in turn encourage innovation, creativity and risk taking. In essence, how managers deal with their people would create the environment in which people are able to motivate themselves. This is what South Africa needs – to work smart, and not hard. The education and training philosophy is important for the success of ergonomics. Stapelman in 2000 stated the need to apply the "SMART" philosophy. It entails the following:

S – Specific in terms of focus on a subject
M – Measurable in terms of it being quantifiable
A – Achievable in terms of the standards being attainable
R – Results orientated in terms of something constructive being achieved
T – Time Framed in terms of time limits being stipulated.
The SMART philosophy is extremely important in a changing world of technology.

Why is there an increased interest in ergonomics?

The increasing interest in ergonomics can be attributed to a number of factors. The most obvious are the rising costs associated with work-related injuries or illnesses. Legal policies and procedures are being regulated in all industries around the world. There is pressure from labour unions and insurers which have increased employee awareness. This is focused on an environment conducive to the task performed and there is mounting evidence that ergonomics programmes can positively affect quality and productivity. These issues combine to make ergonomics an important issue. Worker injuries and their subsequent costs, both direct and indirect, often are the result of some problem with the interface between a worker and a machine system. As technology improves, it leads to increases in automation, so too have work-related illnesses increased – witness the tremendous rise in cumulative trauma disorders, the fastest growing category of workplace trauma in a stressful environment. Causes include poor or unnatural postures, static postures, excessive force required to perform a task, repeated movement at high frequency, insufficient recovery time between repeated movements, vibration and cold temperature (Render and Heizer, 2006).

The ergonomics problem has become so serious that fines are issued to organisations. Direct medical and compensation costs are being incurred by all stakeholders as a result of poor ergonomic management which represent a significant loss and could have a detrimental effect on profits. There are, however, additional losses associated with ergonomically-induced injuries and illnesses. These are the costs associated with absenteeism, restricted work day cases (workers can return to work, but not to their regular job), turnover and retraining (Rowan and Wright, 1994).

DESCRIPTION OF THE INDUSTRY

This section presents descriptive statistics from the survey sample. Call centre operations at three organisations were used. Organisation A is leader in technological innovations in the cell-phone industry with 150 operators. Organisation B is a state of the art call centre in the banking industry with 100 operators and organisation C is a call centre in the education environment with 150 operators. To respect the anonymity of the industry, names and other direct identifying information are not included.

LIMITATIONS OF THE STUDY

A research project generally has limitations. In this case, because of the political nature of government departments, managers were wary of being interviewed. The primary obstacle encountered was the reluctance of staff to provide information, weary of being victimised. There is a focus on the immediate work environment.

SURVEY EVIDENCE THROUGH CASE STUDY APPLICATION

The survey focused on a qualitative approach of gathering information through questions based on the current experiences of the industry. Information was gathered through, personal discussions with individuals and direct observation. The results provide questionnaire topics of the various categories of information gathered from the organisation.

Table 1. Summary of results

	A-Y	A-N	B-Y	B-N	C-Y	C-N
Sample	75		62		95	
Do you have other tasks during operation	60-80%	15-20%	50-81%	12-19%	5-5%	90-95%
Do you use micro pauses to reduce tension	60-80%	15-20%	55-89%	7-11%	35-37%	60-63%
Do you perform regular pause exercises during computer operation at least every hour	50-66%	25-34%	30-48%	32-52%	10-11%	85-89%
Do you alter your posture during operation	38-51%	37-49%	44-71%	18-29%	60-63%	35-37%
Is your chair adjustable so that your elbow is level with the height of your chair	70-93%	5-7%	50-81%	12-19%	80-84%	15-16%
Do you have stable footrest to rest your feet	0	75-100%	2-3%	60-97%	0	95-100%
Does your desk have adequate clearance for you're your legs – depth 550mm width 800mm	50-66%	25-34%	55-89%	7-11%	80-84%	15-16%
Is your screen at a comfortable reading distance	70-93%	5-7%	45-73%	17-27%	19-20%	76-80%
Is the image free from glare, stable	68-91%	7-9%	60-97%	2-3%	58-61%	37-39%
Is the monitor and keyboard aligned to you	15-20%	60-80%	59-95%	3-5%	45-60%	50-40%
Do you have easy access to all your items	68-91%	7-9%	60-97%	2-3%	36-38%	59-62%
Do you have access to fresh air during operation	72-96%	3-4%	55-89%	7-11%	10-13%	85-87%
Does your desk size accommodate all	50-66%	25-34%	48-77%	14-23%	47-49%	48-51%

your work tasks						
Do you stretch yourself during operation	40-53%	35-47%	15-24%	47-76%	55-73%	40-27%
If you experience eye fatigue, have you visited the optometrist	20-27%	55-73%	15-24%	47-76%	38-40%	57-60%
Are you comfortable with the lighting	69-92%	6-8%	60-97%	2-3%	17-18%	78-82%
Absenteeism levels		1%		1%		15%

SUMMARY OF SURVEY RESULTS

Summarized results are shown in Table 1. A,B and C are the organisations while Y= Yes responses and N = no responses. As an example 60 respondents of a sample of 75 mentioned that they perform other tasks during the call centre operation process, which is equivalent to 80% (question 1). It can be deduced from table 1 that organization C has a problem with their ergonomics management and needs to implement ergonomic principles. On evaluation of organization C, there seems to be a major problem starting with management, motivation levels and the death of individuals. In the past 5 years, 3 agents lost their lives through suicide due to high stress levels, approximately 75 agents are on medication and very little seems to be done about the welfare of the agents. Approximately 50 % of calls are lost in peak periods (registration period) because only 50 % of staff adhere to ACD (average call duration) time whilst others are involved with administrative and other activities, sometimes non-productive activities. Experience shows that 25% of the staff was non-performers and nothing is done about it. If the calculations are done in performance management and the workload is distributed evenly, the problem of non-performance could be reduced.

Organisations employ substantial numbers of agents from different population groups that vary in anthropometry, thus making the adjustment of workstations difficult. The objective of the programme was to document patterns of musculoskeletal injury or discomfort experienced by the agents and to begin relating them to the job and workplace elements that might have contributed to them. During the interviews, the agents related the frequency with which they experienced muscle or joint pain in each of the 16 areas of their bodies.

Approximately all workers reported that they at least sometimes experienced pain in their upper back (80%), neck (49%), and right hand (70%). This prevalence of neck, shoulder, and back discomfort is consistent with results of similar surveys on workers throughout the world.

The data are also comparable to those found in a separate study in which a sample (n=15) agents rated their comfort levels at four different points of the day. Discomfort tended to increase throughout the day and by late afternoon 12 out of 15 were reporting some degree of discomfort in their upper backs, 8 out of 15 were reporting discomfort in their right hands and 5 out of 15 were reporting discomfort in their necks.

Much of the reported discomfort in the back and neck can be attributed to the working posture of the seated agents. In response to job and workstation characteristics, agents typically adopted a hunched working posture. Analysis of the postures made of sixty subjects indicated that 40 percent stooped forward (i.e., torso flexion) at least 20 degrees throughout the call duration. Several workers stated that this posture is necessary to obtain maximum output. Such postures have been cited as a factor in muscle fatigue, and discomfort (Grandjean, 1982). The tendency of operators to work in this hunched posture can be attributed to at least three factors, the visual demands of the work and the geometry of the workstation.

All agents complained of the visual strain of computers that need to be worked on throughout the day. Agents also complained that when the florescent light goes off, it takes about a month for it to be replaced.

The tendency of agents to work in the hunched posture also suggested a potential conflict between workstation geometry and operator dimension. Analyses indicated that the location of the computer screens and the keyboard were not centralized.
All agents performed their tasks in a seated position but there was a lack of adjustments to enable agents to adjust their chairs according to the required height of the work station.
Management, with the capability of leading people towards performance improvement, could improve the morale of people by providing an environment in which work could be done through an ergonomics improvement plan and effective communication among individuals (Ramdass, 2007).
Call centres demand innovative, cost effective, space saving designs with an emphasis on people management in a diverse cultural society. The major contributors of health and safety risks are work-related upper limb disorders such as voice loss, throat infections, stress, a feeling of being cooped up and a lack of fresh air. To add to the problem, electricity black outs prevent the use of all electrical appliances such as air-conditioners.

RECOMMENDATION FOR EFFECTIVE CALL CENTRE DESIGN

Due to it being a labour intensive environment the motivation level of the workforce needs to be high to obtain maximum output – a participative management style that listens to the problems experienced and a constructive effort of problem resolution. Change is initiated by leadership with strategic vision for the success of an organisation. The vision and mission comes from the organisation's leadership (Stevenson, 2007). Visionary leadership drives the organisation towards the attainment of organisational objectives through the transfer of decision-making ability to the workforce. Thus the efficiency in the utilisation of resources is improved through the elimination of barriers between stakeholders and the creation of trust.
Visionary leaders create and articulate a realistic, credible, and attractive vision of the future that grows out of and improves upon the present. Visionary leaders have three skills: ability to explain the vision, ability to express the vision, and ability to extend the vision. The leader needs to be proactive and use the current threat as an opportunity towards the creation of a competitive industry. The barriers in communication should be eliminated through the application of communication skills and the respect for others. The sharing and learning in the workplace develops an increase in morale and the exposure of employee capabilities (Render and Heizer, 2006).
Leadership has the key to changing the organisation around through the effective implementation of fundamental methodology that would improve the ergonomics of the call centre industry.
Argenti (2005) mentioned that he "lays the blame for business failure squarely at the feet of the often autocratic chief executive." The researcher agrees with Argenti as this is experienced in the SA clothing industry. He mentions two issues; firstly that the leader does not accept the need to change the current operation, and secondly, the leader is overambitious and considers that he/she is flawless.
Carson (1991) mentions that there are "three distinct areas of weakness: leadership, finance and competitive failings. This is often linked to marketing inadequacies, particularly concerning developments and improvements at an appropriate time. He also highlights the danger of overambitious major projects and acquisitions which either cost too much or fails to deliver the hoped-for synergies."
Trust is an important ingredient of leadership and some of the aspects that enhance trust in leadership are the following: (Botha, 2000)

- Trust appears to be a primary attribute associated with leadership.

- Part of the leader's task has been, and continues to be, working with people to find and solve problems, but whether leaders gain access to the knowledge and creative thinking they need to solve problems depends on how much people trust them.
- When followers trust a leader, they are willing to be vulnerable to the leader's actions.
- Honesty consistently ranks at the top of most people's list of characteristics they admire in their leaders.
- In times of change and instability, people turn to personal relationships for guidance, and the quality of these relationships is largely determined by level of trust.

Thus the researcher would like to stress that without leadership that embraces change and process improvement initiatives, the organisation would remain stagnant with minimal success rate.

IMPROVEMENT STRATEGIES

It is important to note that although strategies for a congenial work environment are in progress, certain aspects could be addressed in the short term. It is the shortsightedness of the researcher that not all aspects were addressed during the study due to time constraints

Comfort

Comfort is imperative in a call centre environment than in a normal office situation. Temperature needs to be maintained at comfortable levels during the 4 seasons, with a circulation of fresh air at all times. A great deal of thought needs to be given to the positioning of a call centre in a building. There is a tendency to place the call centre in the middle of the floor, with no access to natural lighting or windows. This leads to a feeling of isolation and depression unless care is taken on lighting and décor. Footrests should be provided to accommodate the different sizes of people. Footrests add comfort to the agent during the operation. The provision of palm rests for the workers with wrist/hand complaints – this would enable the operator to perform their tasks within their workspace with more ease and adds to the comfort of the agent (Alexander and Pulat, 1991).

Temperature, air movement and humidity influence how comfortable an office becomes, particularly when sedentary tasks are performed. There are considerable differences between individuals in their preference for thermal comfort and it is unlikely that one temperature will suit everyone. Some workers may be sensitive to changes in air quality.

Air quality can be affected by activities such as dust from construction work and fumes from carpet installation. If symptoms relating to skin or eye irritation or breathing difficulties are noticed that could be associated with such events, the agent should notify the supervisor. Supervision need to investigate when construction activity (or any other activity that hinders the well-being of the agent) would be completed (Byrne and Rigby, 2000).Locating workstations so that the individual is not sitting close to, under, or in front of an air conditioning outlet may prevent staff being affected by draughts.

Training

Agents need to be trained to properly adjust their chairs and to sit properly -

The chairs that the majority of workers sit in seem to be adequate ergonomically. However, a good chair set in the wrong position can still cause problems during prolonged sitting. Training should be provided on how to adjust the chairs, and why. For example, if discomfort develops in the low back, the seat back may be too high, or if the back of the legs get sore then the seat pan may be set too high. Proper sitting posture should also be taught (Dillard and Schwager, 1997).

Agents need to be trained to stretch properly, and the provision of stretch breaks is necessary. The effective implementation of stretch break programmes ranging from voluntary when the worker

feels the need to mandatory five minutes every hour. The stretches need to be appropriate and be led by properly trained leaders or the individual workers need to receive training (Gryna, 2001).

Medical Management

Implement a medical management program that would include training for the agents and supervisors so that they can recognize early symptoms of CTD problems, and make sure that management promotes a policy of early reporting so that CTDs are prevented. This type of program would need to be corporate-wide to be effective. Experience indicates that an effective medical management program can prevent minor aches and pains from becoming lost workday incidents. All the biomechanical modifications could be made possible and still have a large number of lost days if early reporting and aggressive pursuit of treatment are not part of corporate policy (Kogi and Kawakami,1997).

Workstation Design

Workstation design should respect and accommodate the differences in employees. It should provide sufficient adjustability to accommodate the smallest and largest worker. There is a need for a high degree of team-working and consequently adequate provision should be made for formal and informal team spaces to allow staff to contribute to the development of teams (Grandjean, 1987).

Vending Areas

Vending areas need to be close to the work-area with the provision of healthy meals, television sets and discussion areas so that agents could break their concentration from the task at hand and the monotony experienced. This encourages staff to take breaks and prevent a soiled workstation (Croney, 1980).

Cleaning Services and Noise

The need for a clean environment is essential as agents are talking to customers the entire day. Cleaning services should be made available to keep the environment clean. Plants should be carefully placed at strategic locations that would serve as a décor and provide oxygen. Noise also plays a role in the call centre. It should be at a manageable level where agents are able to effectively communicate with the caller. A storage area should be created for the storage of personal items. This would prevent the loss of personal belongings.

Position of the Monitor

The positioning of the monitor to the side of window light and/or in between overhead light sources would reduce glare. The placement of desks directly underneath light sources should be avoided. The screen or the operator should do not face an unshielded window. Removal or reallocation of lighting sources such as one fluorescent from a bank of two can assist where excess glare is noted. The lights and diffusers need to be clean regularly. Lights deteriorate with age and accumulate dirt over their surface. Fluorescent light flicker indicates that either the tube or the starter needs replacing. Contact with the facilities management office service desk to arrange for replacement of fluorescent lights would be advisable. The aim is for even illumination between adjacent areas. Extra task lighting can be added but should not have hard edges or directly impinge on the computer user’s view or reflect onto the computer screens (MacLeod, 1995).

"Anti-glare" Screen Filters- Where all other efforts to correct lighting have not succeeded, use of a screen filter may be necessary. A trial of the filter before purchase is recommended where possible. Regular cleaning is also recommended. Adjustable brightness and contrast between the background and the text is necessary. The screen needs to be free from reflections, screen flicker and glare. The ability to rotate and tilt the screen is necessary. The screen needs to be at an

appropriate height above the work surface where the top line of text is just below eye level (15 degrees). No greater than six colours should be simultaneously displayed. The orientation of the VDU will also influence posture, particularly the head and neck posture during the course of viewing the monitor.

Noise

Excessive noise may increase staff stress and fatigue. General noise may be reduced by floor carpeting and by locating office areas away from sources of external noise. The recommended decibel range for office work is 55 to 65 decibels (dBA).

Hard surfaces such as glass walls or white boards would act to increase the reflection of noise. Telephone or other conversations can be distracting in open plan offices. Sound absorbing barriers may be considered if such noise is a problem. Some office groups follow their own "low noise rules". Some office machines have high noise levels. Supervisors should ensure that noisy machinery such as photocopiers are located away from the workstation (Pulat and Alexander, 1991).

Adequate personal space and storage for staff needs to be considered to prevent fatigue due to constrained postures or movements. Correct placement of furniture in a work area ensures that staff is not tempted to twist or reach with items over 4 kilograms. It is preferable to place a secondary work space outside the maximum reach area so that staff are required to stand and move around to reach items that should not be lifted whilst sitting. Standing and moving to a position within easy reach of an object is preferable to over-stretching when reaching for objects located beyond maximum reach. Appropriate height and sufficient shelving can also reduce the need to bend or reach excessively to gather or store items. Poor spinal postures should be avoided when reaching sideways and leaning down to the mobile drawer unit. The storage of heavy items example water bottles, reams of paper on shelves should be around waist level. The storage of items on the floor should be avoided as this could lead to lower back problems (Pulat and Alexander, 1991).

Early Intervention

One of the main aims of designing effective, safe work systems and processes is to avoid the development of musculoskeletal injuries or discomfort associated with work. Should discomfort arise, early intervention to address health, safety or comfort concerns in the office environment is vital to ensuring the best chance at resolution and can only be achieved through effective communication between all stakeholders (Grandjean, 1987).

Staff Induction and Training

Computer users should be trained to adjust equipment and furniture appropriately and learn appropriate keying/data entry techniques if this is the main requirement of their role.

Customer relation skills training such as “handling difficult people” should also be considered for those staff in high demand phone and face to face roles to assist in the reduction of physical and psychological tension often associated with these interactions (Ramdass, 2007).

Job Design

Supervisors also have responsibility for the design of the work in the positions under their control to match human capacities.

Attention needs to be given to the following factors in designing safe work;

- Involve the workforce when designing jobs
- Rotation between a variety of tasks involving different muscles and joints
- Utilise user friendly software programs
- Plan staffing needs to cover foreseeable extremes of work pressure

- Appropriate allocation of work during leave periods. Expectation to accommodate workers' reduced capacity following extended leave or injury
- Consider rotation of tasks between employees
- Equipment provision and maintenance

Supervisors also need to ensure equipment requiring forceful use is maintained and replaced as necessary, example hole punch, guillotine and chairs. Some office equipment such as hole punches may require a drop of oil or lubricant occasionally. Blades may need sharpening and chairs may also need regassing.

Employee Responsibilities

Employees should report symptoms of discomfort early to their supervisors. When symptoms or concerns are identified the agent should contact their supervisor and if necessary complete an Occupational Illness or Incident Report Form which would be reviewed and investigated by the Risk Management Office. Late intervention can increase the risk of developing chronic musculoskeletal conditions. Chronic conditions may lead to a person being unable to maintain their employment despite subsequent changes to the tasks. Prompt action is required to control any risks. This is necessary to prevent further risk for the staff member or other staff performing similar tasks.

LONG TERM IMPROVEMENTS

The provision of better work surfaces with rounded front edges can cause mechanical stress concentrations on the tendons of the forearms if workers rest their arms on them.

The possibility of adjustable work surfaces should be investigated to reduce stress on the tendons of the forearms. In future facilities, it may be cost effective to buy a percentage of adjustable work surfaces to adapt to anthropometric extremes. This would become more cost effective if the company moves to more multiple shifts sharing the same stations.

Provide a small number of standing work stations than can be used during relaxation of muscles. These standing stations could be placed along a side wall, and as long as the workers can maintain their identity by logging on to one of these stations, they could be used for up to 20 minutes at a time on a voluntary basis for workers that tire from continuous sitting.

Provide monitor stands - Although the monitor heights in the current workstations appear adequate, as workers are trained to better adjust their chair to their work-surface height to promote the best body postures for keyboard work and writing, the need for adjustment of monitor height would increase. These devices would be required by most by the taller workers. These devices would also help if multiple shifts would be using the same workstation. However, the nature of the work performed should be taken into account as one does not want to raise all of the monitors if it would force people to look up and down more often.

CONCLUSION

Issues of workplace health and wellness are an ongoing priority for the Call Centre, which is the commercial hub of an organisation. It is a joint organisation founded on strong membership from the main workplace parties –business and labour. It is believed that approaches which promote workplace health and wellness are in the best interests of both employers and workers – a clear 'win-win' strategy. In particular, in a period of anticipated growing skill shortages, those employers who pay attention to workplace health issues would have a competitive advantage over others in recruiting and retaining workers with much-needed skills.

Beginning with an ergonomics makeover, a good place to start is with the employees themselves. Employee involvement in decision making around the wellness programmes occurs mainly through survey mechanisms and feedback meeting with managers. Building relationships through

a team approach with a focus on the overall mission and vision of the organisation provides a strategic starting point. Staff may complain about stuffy areas, ventilation, cramped workplace, headaches, backaches, too much/little light, or uncomfortable temperatures. But what they really need is the chance to concentrate, a degree of privacy, easy access to job tools without standing up or reaching, the ability to adjust the workplace to their satisfaction, training and break rooms to reduce monotony. Absenteeism and the reasons thereof could be a key area to address.

The changing of direct lighting into indirect lighting could reduce glaze, replacing painted walls, with colourful fabric that absorbs sound, adding trees and plants would improve the ambience and air quality (Ramdass, 2007).

Good ergonomics means more than putting in some new equipment. It needs to be an ongoing programme that includes management leadership and training. The barrier to this achievement is the attitude and cultural diversity among agents. Teambuilding, communication and a participative management style has the potential to motivate the workforce to new levels of productivity.

REFERENCES

Allnoch, A.(1997,. *IE knits productivity with ergonomics tool*. IIE solutions. 29:16-17.

Argenti, PA. (2005), *Corporate communication*. McGraw-Hill. 4th edition. New York.

Alexander, D.C. & Pulat, B.M. (1991), Eds. *Industrial Ergonomics: Case Studies*,Industrial Engineering and Management Press. Georgia

Botha, E. (2000), *Global competitive strategy imperative for local business*. Management Today. 6.

Branton,P. (1993), *Person centered ergonomics – a Brantonian View of Human Factors*. Taylor and Francis. London.

Byrne, C. & Rigby, D. (2000). International Labour Organisation, Geneva

Carson, R. (1991), *Silent spring*. London: Penguin Books.

Chan, J.W.K., Burns, N.D.(2002), *Benchmarking manufacturing planning and control (MPC) systems: an empirical study of Hong Kong supply chains*, Benchmarking: An International Journal, 9, 3, 256-77.

Croney, J.(1980), *Anthropometry for Designers*. Tiptree, Essex. Anchor Press.

Galer, I.(1987), *Applied Ergonomics Handbook*. Second Edition Butterworths and Company.. London.

Grandjean, E. (1987)\, *Ergonomics in Computerized Offices*. Taylor & Francis:London.

Grandjean, E. (1987), *Design of VDT Workstations. In: Handbook of Human Factors*. Edited by G. Salvendy. New York. Wiley and Sons.

Cooper, DR and Schindler, P. (2006), *Business Research Methods*. McGraw-Hill. New York.

Gryna, F.M. (2001), *Quality Planning and Analysis – from product development through use*. 4th ed. New York: McGraw-Hill.

Haslegrave, CM et al. (1990), *Workplace design in practice*. Taylor and Francis. London.

Helander, M. (1995*), A guide to the Ergonomics of Manufacturing*. Taylor and Francis. London.

Hartley, M. (1997), *Coats Viyella World - A newspaper for Coats Viyella PeopleWorldwide*, Spring 1997. 15(5).

Hill, T., (2000), *Operations Management: Strategic Context and Managerial Analysis*, Macmillan Press, Basingstoke.

Kahn, B., (1998), *Assessing South Africa's Competitiveness: Is the Reserve Bank's Measure Misleading*. LSE Centre for Research and Finance in Southern Africa Quarterly Review, no. 4.

Kogi, K. & Kawakami T. (1997). *Environmental Management and Health*. MCB University Press. 8(5): 188-190.

Kilduff, P.(2000), *Evolving strategies,structures and relationships in complex and turbulent business environment: The textile and apparel industries of the new millinium*. Journal of textile and apparel, technology and management. , 1(1) September.

Krajewski, L.J., Ritzman, L.P.,(1996), *Operations Management: Strategy and Analysis*, 4th ed., Addison-Wesley, Reading, MA.

MacLeod, D. (1995). *The Ergonomics Edge: Improving safety, Quality, and Productivity*. New York: Thompson Publishing.

Porter, M.E., (1996), *"What is strategy?*", Harvard Business Review, 74, 6, 61-78.

Piliso,S.(2008) . *Hello sardine city…where the electricity supply is very iffy*…Sunday Times.03/02/08.
Pulat, B.M. & Alexander, D.C. (eds). (1991). *Industrial Ergonomics : Case Studies. Industrial Engineering and Management Press*. USA. 3-6.
Rowan,MP. and Wright PC. 1994. *Work Study*. MCB University Press. 43(8): 7-12.
Ramdass, K. (2007) *Unpublished doctoral thesis in progress* ,University of Johannesburg, South Africa,
Render, J. & Heizer, B. (2006). *Principles of Operations Management*. 5th edition. New Jersey: Upper Saddle River, Prentice Hall. 391.
Stapelman, M. (2000). *Global competitive strategy imperative for local business*. Management Today. 14(5):10-11
Stevenson, WJ. (2006). *Operations Management.* 8th edition. Mcgraw Hill. New York.
Ward, P.T., Durray, R., (2000), *Manufacturing strategy in context: environment, competitive strategy and manufacturing strategy*", Journal of Operations Management, 18, 2, 123-38.
www.southafrica.info
www.system-concepts.com
www.statssa.org.za

.