

## ASSESSING THE IMPACT OF ERGONOMIC INTERVENTIONS ON WORKPLACE PRODUCTIVITY

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### ABSTRACT

*This work studies the impact of ergonomics on workplace productivity. The various interactions between an employee, and his immediate environment, and how ergonomics can help reduce the physical and physiological stress on the individual have also been studied. The current roles and focus of the Human Resource Department of an organization to help improve the work-life balance of the employees is explored. Suggestions for how ergonomic interventions can help achieve this work-life balance have been provided.*

**Key Words:** Ergonomic interventions, Work-life balance, Human Resource Management.

### INTRODUCTION:

Ergonomics has been defined as the “Scientific discipline that is concerned with the fundamental understanding of interactions between humans and other elements of a system”, according to the International Ergonomics Association [1]

Ergonomics broadly can be classified into three domains, namely,

- **Physical ergonomics**, which deals with human anatomical, anthropometric, and bio-mechanical characteristics and how these factors are related to physical activity.
- **Cognitive ergonomics**, which is oriented towards mental processes, perception, memory, motor response, etc. and the interactions between humans and other elements of a system.
- **Organizational ergonomics**, which is concerned with optimizing the socio-technical systems, organizational structures, policies and processes. This aspect of ergonomics is oriented towards the management of the organization, and has an influence on the decisions taken by the organization to help improve workplace productivity, boost the morale of the employees, etc. [2]

The impact of ergonomics in workplaces in industrialized nations is widely accepted. This has helped boost worker efficiency, workplace productivity and minimize potential hazards to which the workers may be exposed. This differs significantly in industrially developing nations, as compared to industrialized nations. Some of the issues endemic to developing nations, include low utilization of the capital equipment, skill set gaps, poor motivational level amongst

the workers, excessive physical and mental discomfort, and high probability of workplace accidents. [3]

For the success of any ergonomic intervention at workplaces it is important to understand the local socio-economic considerations. The workplace practices in developing nations differ widely from those in the developed nations, and as such, these interventions have to be suitably modified so that they may better reflect the practices prevalent [1.3]

For any organization to maintain its competitive edge, constant innovation, ability to constantly renew itself and identify and tackle issues in their domain are critical factors. However, to be able to measure up to these benchmarks, the most critical aspect of the organization is the Human Resources available within the organization. It is seen that organizations which are considered to be the benchmark in their particular domain are not only able to attract the best human talent, but also are seen to have lower attrition compared to the industry average. [4]

Worker efficiency is a significant factor that determines the productivity of the organization. The worker productivity, in turn, depends on the ergonomic design of the workstation as better designed workstations allow better interaction between man and machine.

[5] Improper utilization of the workstation leads to lower worker productivity and also manifests in other forms such as frequent absenteeism, health issues in the workers, etc. [6]. Only recently, focus has turned towards examining the relationship between implementation of ergonomics in the workplace, and the quality of the product/service delivered by the organization. However, there are not many studies which have examined the relationship between these two critical factors. [4]

## **SCOPE OF ERGONOMICS:**

Although the primary aim of ergonomics is concerned with understanding fundamental nature of interactions between humans and their immediate environment, the scope of ergonomics is much wider in practice. The study of ergonomics is not only concerned with reducing physical discomfort to the workers but also to ensure the overall wellbeing of the workers/employees, so that they are sufficiently motivated, are able to perform to the best of their abilities, and are able to help improve the workplace productivity.

Ergonomics has a two-fold aim, which is concerned not only with improving the organizational productivity, but also help improve the overall well-being of the employees at the workplace. The main focus of ergonomics is towards a better design of workplace, processes and provides a conducive working environment. [1]

Ergonomic issues may be broadly classified into two main categories, namely, micro-ergonomics and macro-ergonomics. The focus of micro-ergonomics is towards aspects such as tools, machinery, etc. that are provided to the employees. This aspect of ergonomics is oriented more towards the “man-machine” interactions. Other aspects of micro-ergonomics include anthropometric studies which are essential and need to be studied before any suitable ergonomic interventions are suggested, the nutritional levels of the employees, and their overall health before such interventions are suggested, the external and internal climatic conditions in which the employees have to work, the body structure and posture adopted by the employees while they are working, as well as the psychological and cognitive differences between the individual employees.

The need to study Macro-ergonomics was felt only in the 1980's, when the need to study issues that were beyond the micro-ergonomic issues. Factors which are influenced by macro-ergonomic issues include culture of the environment, organizational issues, the availability of required infrastructure and climatic and environmental conditions. [1, 3]

#### **SCOPE OF HUMAN RESOURCE MANAGEMENT:**

Human Resource Management (HRM) is concerned with the management of people in organizations. HRM aims to maximize the performance of employees of the organization. HRM is mainly concerned with the personnel aspect of the organization, which is one of the most critical aspects of any organization. The personnel resources of the organization are one of the factors that is responsible for maintaining a sustainable competitive advantage to the organization. [7] In the current scenario, organizations operate in highly competitive environment, and in order to succeed, organizations need to constantly evolve, as well as adjust to the rapidly occurring changes in the market place. Human resources, therefore, are a crucial factor, at each level of the organization. [8]

The role of HRM is more pivotal in case of Small and Medium Size Enterprises (SME). These organizations are characterized by high degrees of heterogeneity, which may be expressed in the form of size of organization, structure, high degree of centralization, etc. [9].

Traditionally, the focus of HRM was towards recruitment, staffing, selection of suitable candidates to fill the organizational vacancies, motivate the employees of the organization, and ensure that the organization retains human talent that drives the organization forward. In the current scenario however, in addition to the traditional roles performed by the HR department of organizations, the HR dept. performs two other major functions, namely, collaboration and commitment building.

The collaborative aspect of HRM involves assisting the managers and supervisors of the organization, depending up on the need of the concerned department, as well as employee preferences. The HR teams of the organization are also concerned with development and implementation of strategies and policies which would be helpful towards retaining the personnel, and lowering the attrition rate of the organization [10]

## **IMPLEMENTATION OF ERGONOMIC INTERVENTIONS AT THE WORKPLACE**

In the present scenario at workplaces, the role of the HR department has undergone a major shift- Initially HR was considered being concerned with recruiting suitable persons to fill up organizational vacancies, develop training schedules for the freshly hired personnel in terms of the job requirement, retention of personnel of the organization, etc.

In the current scenario, in addition to the traditional roles performed earlier, the HR department is also concerned with assisting the various other departments of the organization with their activities.

Earlier, it was the responsibility of the production personnel to maintain the productivity level, and take necessary steps to ensure productivity improved; however, in the present day, the HR department undertakes a massive role in helping to maintain the organizational productivity. For the overall effectiveness it is crucial that the entire organization is geared towards this aim.

One of the methods by which the HR department may be able to make a significant contribution towards the improvement of workplace productivity is by ergonomic intervention. Ergonomic intervention refers to those practices that aim to improve the productivity by providing better working conditions, and ensuring the employees are given a more comfortable working environment, in terms of physical, as well as psychological aspects.

The implementation of such interventions, however, is complicated. It is seen that in complex systems, not considering the nature of work of the operators and the organizational systems that are in place when such interventions are applied could lead to failure in the whole system. [11]

The benefits of ergonomic intervention to help improve the quality of the workplace have been studied, and it is found that positive interventions not only have a positive impact on the work life of employees, but it also reduces the chances of occurrence of musculoskeletal disorders that may occur due to stress caused because of the improper body posture. [12]

It is also seen that suitable ergonomics at the work place has benefits not only on the health

of the employees at the workplace, but also benefits the quality of the product/service delivered by the organization. [13]

The application of ergonomic intervention in the form of micro ergonomics was already known, and recognized since a very long time. These interventions, which were known to managers and supervisors, were oriented towards improving the human-machine interaction, and were based on results obtained through anthropometric studies, the current health and nutritional level of the personnel, etc. [1, 3]

The application of ergonomic intervention in industrialized countries and industrially developing nations differs vastly. Many of the practices that are followed in industrialized countries may not be directly applicable to industrially developing countries due to factors such as socio-cultural influences, working environment, etc. [3]

Some of the suggested ergonomic interventions to improve the workplace productivity include:

- **Design of Work Stations:** It is important to conduct anthropometric studies before modifying/introducing newly designed work stations in any organization. A properly designed work station would provide more comfortable working conditions to the employees, not only in terms of work place health, but also reduces the chances of occurrence of musco-skeletal disorders. An improvement in the overall health of the employees would reflect in terms of improved productivity, lower absenteeism and attrition rates.
- **Environmental Factors:** Ergonomic interventions also encompass factors other than those related to providing better physical working conditions. Another important factor that is to be considered is the environment. A more comfortable working environment is one, which addresses both physical aspects and psychological factors. Providing an environment which is conducive to the working conditions of employees plays a significant role in maintaining the productivity levels of the organization. An appropriate environmental condition is one where the personnel do not face any physical discomfort while working.
- **Employee Engagement:** In the current scenario, the aim of every organization is to improve their productivity to stay ahead of their competitors. Although there are many concepts, such as Total Quality Management (TQM) and Business Process Reengineering (BPR), it is only recently that organizations have started focusing on other processes to improve business productivity. While TQM and BPR are oriented

towards process and operational improvements, practices such as employee engagement and transfer of responsibility are more holistic in their approach, in that, while the former were focused on improving processes, the latter are oriented towards improving the productivity by providing better working conditions to the personnel.

- **Influence of peer groups:** For the success of any intervention at the work place, it is essential that the personnel in the organization have an awareness of how the proposed ergonomic intervention would benefit them, The HR department may conduct awareness programs to develop the required awareness among the personnel before such interventions are made, so that they are in a position to make maximum use of the suggested interventions to their personal, and organizational benefit. Further, during such training, there is the possibility that the any of the personnel may raise other issues, which could be resolved by making such ergonomic interventions.
- **Cultural Factors:** The cultural factors are macro-ergonomic, and with reference to organizations, it is reflected in the approach to work. Ergonomic interventions which have proven to be very effective in industrialized nations may have to be suitably modified before being implemented in developing nations. Care must be taken before such interventions are implemented so that there is no clash with the cultural practices of the area where the organization is operational.
- **Infrastructural facilities:** The availability of infrastructure before any ergonomic intervention must be considered. Many Multi-National Companies (MNC's) operate globally, but the infrastructure available in the geographical area where it is in operation may not be similar to the facilities available in other areas. Before any ergonomic intervention may be considered, it is essential to assess the infrastructure available.
- **Personnel:** The most crucial factor that has to be considered before any suggested ergonomic intervention is considered for implementation. The consideration of the end user, i.e. personnel must be borne in mind, and the requirements concerning the facilities needed must be sought from them. Ergonomic interventions suggested must be on the basis of feedback provided by the operators (in case of people working on machines) or employees (in service organizations). It is important for the HR department of the organization to seek for feedback regarding the current working conditions, and the facilities that they feel is required to enable them to work in more comfortable conditions such that their productivity improves. Suggestions are also important, as any such opinion that may be obtained from the personnel may also provide the HR insight into factors that may have been overlooked while planning ergonomic interventions.

## CONCLUSION:

Ergonomic intervention is one of the more cost effective methods to improve workplace productivity. Such interventions include both micro-ergonomic and macro-ergonomic practices. While micro-ergonomic practices are more localized, macro-ergonomic practices are oriented towards addressing more holistic issues. For the success of any ergonomic intervention at the workplace, it is essential to involve the personnel and actively seek their feedback regarding working conditions. It is widely known that improved working conditions have significant benefits, not only on the physical and mental health of employees, but also has psychological benefits. Working conditions are known to improve the organizational and employee productivity, and are reflected in terms of lower absenteeism in the employees, lesser attrition rates in the organization, etc. Suggestions have been provided to ensure greater success in the implementation of ergonomic interventions. It is seen that the considering the suggestions provided by the personnel plays a crucial factor in determining the interventions needed to improve working conditions in organizations. Ergonomic intervention, in consultation with the respective stakeholders within the organization, may be considered as one of the critical factors to help boost the organizational productivity, and improve the working environment which has tangible and intangible benefits for the organization and stakeholders involved. The HR department may consider ergonomic intervention as one of the primary measures to help improve organizational productivity since the costs incurred in implementing such policies and practices is low but it has high returns in terms of value to the organization.

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