

Implementation of ergonomics in a service unit: challenges and advances

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Abstract: This article discusses the implementation of ergonomics in a service unit of a major company in the energy sector. From the perspective of management, it analyses the process of implementation of ergonomics programmes in four operational areas. The objective was to diagnose the level of implementation of ergonomics. The study is descriptive, undertaken through the interaction with the technical staff of the operational areas involved, incorporating the perception of these role players concerning their work routines. The results indicated significant differences in the level of implementation of the programmes, especially those concerning structural conditions. Important conquests were registered, such as the investment in the training of specialists, the establishment of a facilitator network and the improvement of the standard for the directioning and alignment of the execution of initiatives. The linking in of the programmes with those of occupational health management emphasises its contribution to the safety and well-being of the workforce through interventions aimed mainly at eliminating and reducing ergonomic biomechanical risks. However, the need to broaden and deepen the ergonomic approach regarding organizational and cognitive aspects, as well as the insertion of ergonomics in project design of new work spaces and processes were also identified.

Keywords: programme management; occupational health; safety

1. Introduction

Ergonomics is an important multi-disciplinary field of studies and interventions aimed at the development, of safe, healthy and efficient work processes. Its principals and methods of capturing real work conditions enable the search for solutions for overcoming problems and difficulties that are present in work routines, contributing, thus to the reliability and sustainability of the systems, starting with the valorisation of the safety and the well-being of the workforce as well as efficiency of the work routines.

This article describes the implementation of ergonomics, linked to occupational health management, in a service unit of a major company in the energy sector. The study is undertaken from a management perspective, analysing the implementation process of ergonomics programmes

in four distinct operational areas, located in the north eastern and south eastern regions of Brazil. The objective of the study was to diagnose the level of implementation of ergonomics, with a view to establishing strategic initiatives that would assist with the improvement and sustainability of these programmes.

1.1 Ergonomic Initiative in companies: An overview

In recent decades, the impacts as a consequence of information technology and growing automation of processes have stimulated the insertion of ergonomics into company environment, especially in those areas linked to health and occupational safety with the purpose of improving existing work conditions. More recently, the application of ergonomics has occupied an important share of project preparation related to new business ventures

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and technological innovation. In addition, ergonomics is contributing, due to its methodology to pre-empt future problems related to design, quality and systems development [1, 8].

The primary purpose of ergonomic initiative is to transform work in such a way as to contribute as much to the fulfilment of the established company objectives in the light of completed and future investments, as to the conception of work processes that preserve the health of the workers, encouraging the good exercise of his/her responsibilities and valorising his/her capabilities, both on an individual and collective level [2].

The absence of ergonomics becomes future production losses creating damaging consequences for workers, users and the environment. Inadequate work conditions are at the origin of ergonomic problems, be they of a physical nature, generating biomechanical problems, cognitive, inducing errors, or organizational, leading to stress and work dissatisfaction [7, 9].

Several studies have shown that ergonomic interventions are capable of improving not only the human condition, but also of reducing losses and improving company profitability [4-5]. In the ambit of projects Hendrikse et al [6], by analysing the ergonomic contributions to projects in the offshore area, calls attention to the fact that the costs involved with application of ergonomics in new ventures are lower than might be expected, and in a number of situations have led to overall cost reductions. At the time of evaluations the gains obtained are incorporated for the enhancement of operational efficiency and maintenance creating a positive effect on the degree of reliability and operational availability of the installation. Furthermore there is a reduction in the time taken to execute maintenance activities that accumulate over the length of the lifetime of the operational unit.

The examination of the pertinent literature on corporative initiative with ergonomics shows differences in the characteristics of the programmes due to the size and type of business activity of the company. The common elements are the vigilance related to health questions, projects of work stations, the choice of tools, aspects of quality, amongst others. Ergonomics programmes are very often seen as just a question of health and safety. Only a few companies have reached a state whereby ergonomics constitutes an integral part of global company strategy [3].

The implementation of an ergonomics programme requires the commitment of the company, especially in the necessary formation of the building of strategy. The programme needs to include some key elements, such as: involvement of the company leadership and participation of the workers; management of ergonomic risks; information and communication; training and evaluation to assure effectiveness [9]. However, a participative approach as well as expertise in ergonomics are considered crucial ingredients for the success of the programmes [3].

2. Aspects of methodology

The development of the study was guided by the principle and methodologies of ergonomics, based on a constructive and participative approach [2]. It was undertaken through the interaction with a network of ergonomics facilitators made up of the technical staff responsible for the programmes in the operational areas, incorporating the perception of these role players in their work routines.

This is a descriptive study, based on information collected by means of technical visits through interviews, observations and documental research. The period under study extended from March 2009 to March 2011.

The analyses were aligned to the corporate directives established in the company ergonomics management standard and are supported through consulting of the pertinent literature. The principle aspects analysed were the structural characteristics of the programmes and the directioning of their initiatives.

The discussion and validation of the results were undertaken in face-to-face meetings and through videoconferences with those responsible for the operational conducting of the programmes consolidating a critical analysis of the status of the implementation of ergonomics in the four operational areas.

3. The implementation of ergonomics in a service unit

The methods and application of ergonomic initiative should be adjustable to the context in which it is inserted. It should be guided by the

constant search to create the possibilities to transform work into a process which permits the participation of the different role players involved, with their own points of view and individual interests [2].

3.1 General characteristics of the unit

While being at the same time an integral part of a major company in the energy sector, the service unit where this study was developed had as its mission the fulfilling of solutions in terms of services, optimizing resources and contributing in a sustainable way to company results. The management policy contemplates the adoption of safety and environmental protection measures in its processes, as well the valorisation of the workforce, investment in education, training, occupational health and quality of life.

At present the unit has a contingent of some nineteen thousand people, among direct employees and third party personnel who operate in an integrated form in the rendering administrative and support services to other company units covering the greater part of the Brazil. Its structure consists of a central management unit denominated, "Head Office" and five operational areas, one of which is located in the north eastern region and four in the south eastern region of Brazil. Due to the recent creation of the fifth area in the south eastern region, the latter was not considered in this study.

3.2 Ergonomics in the operational areas

The analysis of the data concerning the trajectory of ergonomics in the service unit showed that despite the existence of several previous initiatives developed in the ambit of the four operational areas, the structuring of ergonomics in the unit occurred from 2009 onwards. It had as its milestone the creation of a specific line of management of ergonomic initiatives at head office level, dedicated to planning, accompaniment, alignment and enhancing of the initiatives developed by the operational areas.

In response to corporate guidance and directives, over the length of the two years of implementation, the efforts were focused on the identification and specialised formation of the professionals responsible for the technical conduct of the

programmes and in the formation of an ergonomics facilitator network.

The investments in training of the professionals offered different types and levels of formation, such as: specialization at post-graduate level, basic course, ergonomics in projects, cognitive ergonomics and training in the corporate information technology system of ergonomics, implemented recently (Figure 1).

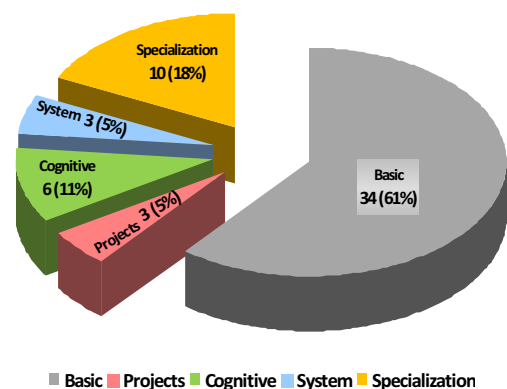


Fig. 1- The number of professionals graduated by capacitation type.

In relation to the level of implementation of the programmes, the results indicated significant differences by areas analysed, especially those related to structural conditions.

In general, the four areas have at least one qualified specialist. Three areas formed sub commissions trained in basic ergonomics that operate in the planning and development of interventions. However, only in just one of the areas is the ergonomics facilitator exclusively dedicated to the programme. In the remainder, the professionals involved are responsible for other programmes and activities of occupational health too, thus limiting their availability and involvement with matters of ergonomics.

The execution of the programmes is guided by an execution standard prepared by head office with the assistance of the facilitator network, conferring uniformity to the initiatives. Linked to the occupational health management, the programmes have a predominant effect on the biomechanical aspects (making work stations adequate, reducing the physical demands on operational activities and

improvement of comfort in office areas). In two areas, one in the south eastern region and another in the north eastern region, significant initiatives were observed focused on the development of educational initiatives and contribution to projects.

The structural deficiencies identified reflected the need of adequation of the operational capacity of the programmes in the light of the increase of demands as a consequence of the accelerated process of growth and expansion of the company.

4. Conclusion

The analysis of the results showed important conquests in the development of ergonomics in the service unit, especially related to the investment in training of specialists, formation of facilitator networks and enhancement of the standard for the directioning and alignment of the executive initiatives. These aspects were considered the main strong points by the ergonomics facilitators.

The linking in of the programmes with those of occupational health management emphasises their contribution to the safety and well-being of the workforce through interventions aimed at obtaining the elimination and reduction of ergonomic biomechanical risks. However, the necessity to broaden and deepen the ergonomic approach related to the organizational and cognitive aspects, as well as the insertion of ergonomics in project design of new work spaces and processes were also identified.

The ergonomics initiative has as its basic objective the feasibility of the practice of ergonomics in a perennial, progressive and articulate form compared to eventual and localized procedures. It means the pre-empting of ergonomic risks as a consequence of the inadequate work conditions, as well as guaranteeing the long term

effectiveness of other efforts with the certification of quality, excellence standards and a modern management style.

In this respect, the main challenges for the service unit under study are related to the development of strategic initiatives that foment the consolidation and the improvement of the programmes, as much in technical aspects, as in the support of the management in the ambit of operational areas, such as: development of specific capacitation (ergonomics in projects, ergonomics management and methodologies of evaluation of cognitive and organizational aspects); designation of dedicated professionals to the programmes; implementation of an ergonomics information technology system in all the operational areas; technical assistance and strengthening of the facilitator network.

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