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PARTICIPATORY ERGONOMICS–AN EXEMPLARY PARADIGM IN WORK–PLACE DESIGN

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Abstract

Employee participation in the decision-making process has always been extolled as a great management practice in employee engagement initiatives by the corporates around the globe. While this was true to the extent of managerial decisions, a newer paradigm has emerged. An employee knows his work better than anybody. So, who better than the employee, be involved in the work-place design process? While designing a physical work setting, employees are at the centre of the design and not just the chair, table, light fan etc. Efforts are made to align the physical surroundings to suit the individual needs. While customization heralded a new era in the field of manufacturing and has embraced every walk of our lives, it is high time firms look at customizing the environment where employees spend quality and quantity time. This not only creates a sense of ownership but also enables employees work in a safe and sound environment. Issues like Productivity, absenteeism, accidents at work place,

Keywords:

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attrition etc due to non-engaging physical work set up can be addressed with participatory ergonomics. For a program of this sort to take shape, see the light of the day, and be sustainable, the support top management extends plays a crucial role. While the management is ready to shell out huge money and approve budgets for re-skilling employees which helps them contribute to the bottom line; a healthy worker ideology needs to dawn upon the new age leadership.

This conceptual paper is an attempt to explore literature that is similar to the train of thought the researcher posits.

1. Introduction

Industrial ergonomics experts swear by a dictum that goes, “Know your user, Know your user’s task”. The philosophy of a good ergonomic solution, therefore is to understand the reciprocal relationship that the job and the doer of the job share. A divorce between understanding the two in tandem leads to failed attempts to address problems that workers face due to a workplace that is ergonomically ill designed.

In any participatory ergonomics (PE)program a company wants to initiate, all stakeholders like employees, managers, OSHA experts, maintenance personnel, HR managers etc will take active part. It is an integrative approach to designing a place which helps improve productivity and reduce injuries. PE can help reduce work place injuries, musculoskeletal disorders, lower back injuries etc by addressing specific problems workers face. Incidentally it reduces the cost company incurs in medical claims of employees who suffer from injuries while at work. While accidents at work place is dealt with law, physical discomfort employees face while using equipment’s, or poorly designed chairs, desks, ill lit and ill ventilated working area are issues which law doesn’t address. Hawthorne experiments gave a perspective of how lighting can influence employee productivity.

Instead of a desk researcher giving insights about the causes, effects and suggestions to overcome physical problems associated with worker’s interaction with the job, an ergonomist who interacts with the actual workers, facing problem will be able to offer better solutions. The

worker's exposure to musculoskeletal disorders is greatly reduced due to PE. It empowers employees physically and mentally. The fact that they are involved in the process makes them more responsible to their productivity. Once PE is implemented workers feel safe at work and appreciate company's interest in providing a safe working environment.

2. Research Method

The researcher engaged in a thorough literature review using sources like EBSCO, ProQuest, ResearchGate and Journals related to ergonomics. While participatory ergonomics remained the keyword for most of the searches, management support for ergonomics, employee participation in ergonomics, employee's involvement in designing workplaces were some phrases that yielded good results. The inclusion criteria included relevance, review, design of the study and geography. As far as relevance is concerned, the researcher aimed at articles which emerged from the search using keyword or phrases (as highlighted earlier). All the sources used were peer reviewed journals. The articles included single firm studies, case studies, conceptual notes and empirical studies. Since no much research on PE is done in India, it was a good enough reason to serve as research gap. Largely studies conducted in the US and UK dominate this work.

3. Literature Review

Participatory Management has been in vouge since the times of Hawthorne experiments where changing working conditions and their impact on workers were studied by involving workers. It is an approach where employees are empowered to participate in organizational decision making. Such participation is likely to increase motivation, job satisfaction and productivity.

The concept of Participatory Ergonomics (PE) seems to be inspired by the Japanese concept of Quality Circles(QC). The aim of quality circles is to bring a group of workers of a certain unit to ideate on problems faced by them at workplace and brainstorm on the possible solutions, finalize on a solution, implement it and review its impact. These QCs are used for problem solving often supported by the top management. More often than not solutions are simple and are implemented without much fanfare. QCs try to address small but significant problems which if left unattended may lead to blunders. They not only help solve problems but also improve productivity, reduce workplace accidents and injuries, increase motivation and give a sense of ownership to

employees. Among various topics dealt with, improving occupational health and safety is the top priority.

Wilson and Haines (1997) defined PE as a process of involving people in planning and controlling of their work. They believe workers have a better knowledge and power to influence both processes and outcomes in order to achieve goals.

The ideology of QC is supposedly be the motivation for PE as established by Vink, P., Peeters, M., Gründemann, R. W. M., Smulders, P. G. W., Kompier, M. A. J., &Dul, J. (1995) in their work. They suggest an ideal participatory ergonomics approach must include steps like preparation(core committee to oversee the process, organizational commitment, budget, goal setting and framework creation), work and health analysis (monitoring of work through questionnaire, checklist or observation to be carried out), evaluating solutions (major risk factors and employees are selected and solutions are tested), implementation (training, promotion and instruction) and evaluation (measure the effectiveness of the program). This approach was found successful because it was a step by step procedure, it made workers conscious about the need for improvements and they were motivated with their participation making a difference in the whole exercise. Though a time-consuming process it will be useful in making workplace's environment workable. The authors suggest the purchasing team to be part of the core committee to avoid delays in procurement of ergonomic furniture developed as per the employee's requirement.

A common theme that runs parallel in most of the PE research is the role of top management commitment. In their study, Wilson and Haines(1997) and Haims and Carayon (1998) urge the management's support for the success of any PE initiative. Lee(2005) believes the first step in any PE program is the commitment by the management. A significant amount of work by Halpern and Dawson (1997), Laitinen et al (1997), Moore and Garg(1998), Dale(2004), Torma and Krajewski et al (2007) have highlighted the role of board of management and the support it extends to be a driver of change implementation. The effect of no support by the management is recorded in studies by Rosecrance and Cook (2000),Polyani et al(2005), Bohr, Evanhoff and Wolf(1997), Jensen(1997). Shannon(2000) states the management's commitment to safety alone will help them contribute to PE program. Summation of research in PE unequivocally stress

upon the management's philosophy and support as basic force that drives success of such initiatives. Nagamachi (1995) was of the opinion that a committee that oversees PE must be equipped with knowledge related to Japanese techniques like Just In Time, Kaizen, quality circles and quality control techniques. Improving occupational health and safety is a direct outcome of participatory ergonomics.

Studies suggest a variation in the perspectives that govern the support different departments give towards the implementation of PE programs. In a study by Vallas(2003), the author found conflicting ideologies of departments. It was observed that the production department was of the opinion that decisions regarding work arrangements had to centralized, whereas the HR manager felt a participatory style of management was better. It was no surprise that the HR manager's views were brushed under the carpet, for the management felt the HR manager was not able to digest the 'power' other departments had over them. The resistance middle management exhibited for reasons such as additional burden on them or self interest was found to be bothering the PE program as found in a study by Harley et al (2006). The general belief that the middle management is a representation of top management, among lower level employees is found to be a myth, as they are working towards furthering their own interest than the welfare of employees at the lower level. Balogun(2003) found lack of support and time to be the reasons why middle level managers resisted change. A major concern expressed in the literature is the varied levels of commitment in pursuing company interests such as health and safety, and initiatives like PE programs by different managers in different levels.

While PE is looked at as a team effort to make the workplace ergonomically sound, researchers have stressed upon the need for training this team. Topics like the framework for PE program, ergonomic concepts and principles, identifying the problem areas record keeping etc must be covered in the program.

4. Discussion

Adapting tothe environment and adapting things around us for better use has been in existence from the times of cave men. Spearheads, arrowheads and other hunting tools were designed in a

manner that best fits the user. The best part about these tools was the fact that the designer of the tool and user were the same, thereby reducing possible problems that could have occurred over time due to its usage. Gibson(1979) referred to the reciprocity of relationship between the user and the tool as an example of individual-environment mutuality. While he suggested an affordance perspective which focuses on environment's role in defining an individual's action, Turvey and Shaw (1979) suggested an actor's effectivities approach where user's perspective dominates the creation of new things. However, the need of the hour is a marriage between these two approaches which leads to a participatory ergonomics paradigm.

Traditional ergonomic solutions have focussed on either the user or the work environment separately and ignored their interactions. Physical discomfort employees face at workplace is due to the interactions between the user and their environment, therefore solutions must be considering the interactions and not in isolation. Another mistake that conventional ergonomists may commit is consider the users to be mute spectators than active sources of information as opined by McNeese &et.al(1995).

Liker and Colleagues (1989) were of the opinion that Japanese firms used quality circles and safety circles to address ergonomics issues, whereas US firms constituted ergonomic teams which made conscious efforts to solve ergonomic problems at workplace. In a study by Gadbois et al (1995) it was found that firms in France emphasized the role of joint committees who set the objectives for core team that was constituted to implement a PE program. Theberge, N., Granzow, K., Cole, D., & Laing, A. (2006) in their work spoke extensively about the roles and responsibilities of an Ergonomic Change Team(ECT). Their belief that ECTs give voice to the workers at the shop floor level, concurred with another study by Wands and Yassi (1992). Some of the problems that they found that bothered ECTs were the mix of employees and members from the management whose ideologies were at loggerheads at times, quality of time each could dedicate to the program would vary; while the former had to juggle between work shifts and work load, the latter had to spend time on other strategic activities. Similar sentiments were echoed in studies by Bohr et al(1995) and Westlander et al (1995).

PE is supposed to have an impact on employee satisfaction and profitability of the firm as opined by Nagamachi(1995). The workers are positive about adapting to the new work environment which was designed in line with their needs. Workers participation in the assessment, problem solving, and implementation of solutions lies at the heart of any PE program. Group dynamics research by Lewin(1943) and Cosh and French (1948) have stressed upon the benefits of involving people in discussions and decision making. Participation enables better understanding of the problem, team building and sense of involvement among employees.

Imada(1991) was of the opinion that a participatory approach promotes active stakeholder participation, collaboration and better understanding of the problems. PE programs are also believed to have a positive impact on employee health in various industries like construction ,healthcare food processing etc as highlighted by various studies by Bohr, Evanoff and Wolf (1997), Bohr and Wolf (1999). Studies in the past have also proclaimed positive improvement in workplace factors and employee health, Rivilis et al (2008).

5. Conclusion

In conclusion, it can be stated that a successful PE requires a systems approach. This includes employee feedback about the working environment, their problems faced due to faulty equipment and postures as input, ergonomics expert's action plan and implementation of ergonomically sound work environment as process, finally employee wellbeing both physically and mentally as output.. While medical practioner's intervention is seen as a treatment for physical discomfort, PE is seen an organization's treatment towards workers safety and wellbeing. A PE program cannot be implemented overnight, results are not immediate, and success not guaranteed unless a dedicated team works on it. Organizations will be rewarded with healthy workers, cost reduction in the long run and an employer of choice tag if participatory ergonomics is implemented in letter and spirit.

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