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## *Fundamentals of Human Factor and Job design with respect to Production and Operations*

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*Abstract: The goal of human factor is to fit the task to the individuals and make them more productive, improved health and safety, higher job satisfaction and good relationship between the management and the colleagues. The general principle of this human factor should be applied to the work environment to achieve success. Human factor approaches are calm for improving the employees and process quality. The work system model is a human factor approach will bring success to the organization if it is implemented. This article further discussed several important components of the human factor work environment.*

*Keywords: Human factor, job design, workplace environment, safety and health.*

### I. INTRODUCTION

The emerging new communication and technology era is significantly changing the ability to work and the capacity of work done by the employees in the organization. These changing technologies provide a way to employees to engage themselves in their workplace. When the employee's feels that they were in secure workplace and it makes them to be more motivated and engaged towards the work. To do so, human factor is used in the workplace. Human factor is the study of work. It is the application of the scientific knowledge evolved in the workplace in order to improve the efficiency and wellbeing of the employees. The objective of this human factor program is to ensure that the workers feel comfortable with their workplace demands and decrease the risks associated with it. The goal of human factor is to fit the tasks to the individuals and make them more productive, improved health & safety, higher job satisfaction and good relationship among the management and colleagues.

#### **Human factor**

Human factor is defined as the study of work and designing the workplace, tools, machines, equipment's etc. this application will consider the employees physical, psychological, physiological capabilities and helps in optimizing the efficiency and productivity of the employees and drive the safety, health and well-being of the employees (Fernandez & Marley, 1998).

#### **Job design**

Job design deals with designing the contents of the job. Which fixes the duties and responsibilities of the job? Job design is the specification of the contents, methods and relationship of the various tasks in order to fulfil the technological, organizational, social and personal requirements of the employees. Job design is influenced by various factors in the tasks which are used in the organization for developing the employees.

## II. ADVANTAGE OF HUMAN FACTOR

### Increased productivity

Implementing the human factor program in the organization will reduce the work related injuries and make the employees feel safe and secure. So the workers will be more efficient, productive and have great job satisfaction.

### Increased employee morale

When the employees feel secure in their jobs they can feel valued in the organization because they know that their employers make their work environment safer.

### Reduces absenteeism

Human factor leads to pain free and healthy workers, were the employees more likely to be engaged and productive in their works.

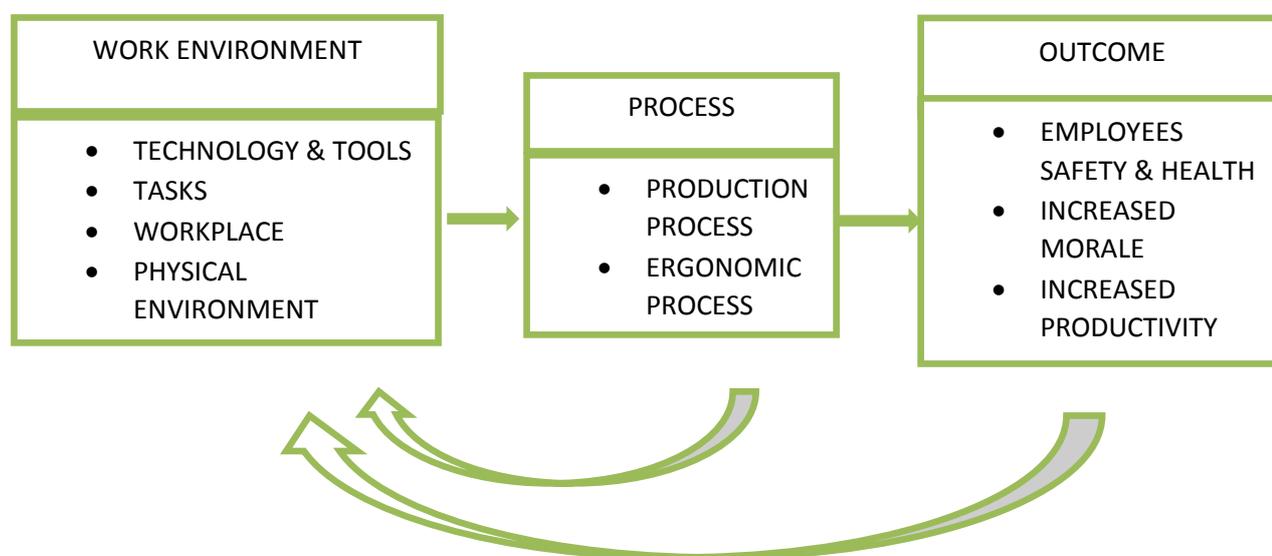
### Improved safety and health measures

The various risks associated in the work are fully reduced by the human factor and provide safety and secure work environment to the employees. Employees are given gloves, glasses, ear plugs, helmets etc. in the production area to improve the safety and security of workplace.

### Work system model of production and operations

Fig.1 describes the elements of the work system, which clearly explains the systematic approach to the production unit. This model is a dynamic model; any change in this work system will brings change in rest of the work system environment. It is a chain process, when the changes in the system are not recognized clearly it will have the effect on the final outcome. When there is updating in the technology and tool the employee should be trained on it. If not he may not have the knowledge to handle the situation, so the production process will stopped and it reflects on the employees' performance. So accordingly the job design should also be designed in such a way were the employees can feel more secure towards the job.

Fig.1. Work system model of production and operations



The key characteristics of this work system model include: (1) description of the work environment and its interacting elements, (2) identification of production processes and ergonomic processes being influenced by work environment and contributes to the employee's outcome, (3) integration of the organization and employee's outcome, (4) feedback loops between the processes and the outcome and the work environment. (See Fig.1).

### III. CHECK POINTS OF HUMAN FACTOR

#### Technical feasibility

Technical Feasibility of human factor determines how much the employees can be reliable on the hardware and software which is capable of meeting the needs of a proposed working condition. A job is asset of tasks or duties assigned to the employees to perform .The person who holds the job must be capable of performing the tasks with the equipment and system available and the job must take the necessary transformation of inputs into outputs. The job must not be beyond the reasonable limits of an employee's skills or physical and mental strength. Proper selection of processes, procedures and equipment as well as proper training of employees helps to ensure technical feasibility of the program implemented.

#### Economic feasibility

Various costs evolved in performing the tasks should be minimum and it should not be too high. Though the business unit should perform in the dynamic and competitive market conditions they are working under pressure, so the economic feasibility of selecting the system plays a vital role. An organization must achieve economic feasibility in order to survive in the market .This may make it necessary to stress technical efficiency at the expenses of employee satisfaction and motivation .Jobs must be made satisfying to add to the workers' motivation so that there is no reduction inefficiency and perhaps even an improvement in quality and cost performance.

#### Behavioural feasibility

The characteristics of a job may affect the employee's perception on the particular job. The employee's feels that the desire from a job affects their motivation to performance. The job is not only a mechanical motion; the employees need motivation, mental simulation and will to perform the tasks perfectly. Beyond the individual the job carries the social interaction that may lead to group reaction .Informal organizations or work groups have a large impact on the effectiveness of an organization. When an employee feels motivated his performance increases. Here human factor plays a vital role in creating pleasant environment to workers in the work area. Attitudes are transmissible and peer relations may be responsible for many of the motivational reactions of workers in the workplace, were they can create a healthy environment.

### IV. CONCLUSION

When the work system model is successfully introduced in the organization, it can yield perfect outcomes from the employees who will make their employees more motivated and being satisfied to the job. A happy employee will be a productive employee. So when the needs and requirements of the employees are fulfilled then they will be more productive. This model suggest the outcome which drives success to both employees and as well as the organization as a whole. Future research on this work model can be proved by conducting the survey in the operations field and find the quality of work done by the employees. And also it will answer the question of how to redesign the job for employees in the dynamic work environment which benefits both employees and organization.

### References

1. Anzai, Y., Ogawa, K., & Mori, H. (Eds.). (1995). Symbiosis of human and artefact.
2. Elsevier. (Advances in Human Factors/Ergonomics Series, Volume 20).
3. Barling, J., & Frone, M. R. (Eds.). (2004). The psychology of workplace safety. Washington, DC: American Psychological Association.
4. Fernandez, J.E. and Marley, R.M., Applied Occupational Ergonomics: A Textbook, Kendall-Hunt Publishing, 1998.
5. Johnsen, E. G. & Corliss, W. R. (1971). Human Factors Applications in Teleoperator Design and Operation. Hoboken, NJ: Wiley (Human Factors Series).
6. Snook, S.H. and Ciriello, V., "The design of manual handling tasks: revised tables of maximum acceptable weights and forces", Ergonomics, Vol. 34, 1991, pp. 1197- 213.
7. Wu, B. (2001). Handbook of manufacturing and supply systems design: From strategy
8. Formulation to system operation. London: Taylor & Francis.

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