

Ergonomics Assessment – A Study in Tirupur Garment Industries

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Abstract -- Ergonomics is an important aspect in all the industry which helps for the employees to work with un fatigue. The ergonomic factors play an important role in the effective running of a company, so these factors are to be considered seriously. In the ergonomic study various aspects in the industry are to be considered that relates with the employees while working to increase the turnover. The ergonomic problems will affect the workers in a negative way this will leads to decrease in productivity with affect in turnover. The main objective of this study is to find out the ergonomic problems that are dominant in a textile industry and to give suggestion to overcome these problems. In this study a Questionnaire is prepared to know the response of the employees about the working conditions provided by the employee in Tirupur Garment industries. In this analysis the researcher given solutions to rectify the ergonomics problems.

Indexed Terms— Ergonomics, Ergonomic Factors, Fatigue, Productivity, Turnover

I. INTRODUCTION

In Tirupur garment industries the 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.

Work life quality can be evaluated scientifically by considering into account all the factors effecting directly or indirectly the working of the humanly. Human factors and Ergonomics is a multidisciplinary field incorporating contributions from psychology, engineering, industrial design, graphic design, statistics, operations research and anthropometry.

Ergonomics (from the Greek word ergon meaning work, and nomoi meaning natural laws), is the science of refining the design of products to optimize them for human use. Human characteristics, such as height, weight, and proportions are considered, as well as information about human hearing, sight, temperature preferences, and so on.



Fig-1

For system approach, beside the method used during the work; work place planning, design of all the production tools and devices, physical and psychosocial environment are the factors effecting work satisfaction.



Fig-2

Beside the physical factors such as noise, lighting, harmful gases and dust, vibrations etc, all kind of psycho-social factors must be evaluated scientifically. Authorities must know that some recovers based on the experience and common sense may have only limited contribution in scientifically design of the work place. It was tried to evaluate in this study, the work place environments.

In essence it is the study of designing equipment and devices that fit the human body and its cognitive abilities. The two terms "human factors" and "ergonomics" are essentially synonymous. Human factors and ergonomics are concerned with the „fit“ between the user, equipment and their environments.

It takes account of the user's capabilities and limitations in seeking to ensure that tasks, functions, information and the environment suit each user. Proper ergonomic design is necessary to prevent repetitive strain injuries and other musculoskeletal disorders, which can develop over time and can lead to long-term disability.



Fig-3

II. OBJECTIVES

1. To study about the Socio-economic profile of the employees in the garment industry
2. To analyze the ergonomically issues faced by the employee in the garment industry.
3. To observe the work environment of the organization
4. To provide solutions to develop organization with suitable Features of ergonomics.

III. RESEARCH METHODOLOGY

In this Article, the methodology of research is organized by collecting all the details regarding the research design, data collection instrument, sampling procedure, source of the data and statistical tool are also given. A well-structured questionnaire was designed to collect qualitative and quantitative data. The questions related to the objective of the study from a major portion of the questionnaire. It mainly consists of multiple choice questions to the respondent can answer easily by just putting a mark on any of choice of answer furnished. The questions are arranged in an orderly way so as to provide a logical progression. In this study, The Researcher used convenient sampling by selecting convenient population elements from the entire population

IV. STATISTICAL TOOLS - PERCENTAGE ANALYSIS

The Percentage analysis is an effective tool to study the attributes of the respondents. Each response by the respondent to a statement is plotted into frequency table and quantified. The entire response to the statement is considered as 100 percent and each of the choice within the statement is measured as what percentage does it holds to the total response to that particular statement.

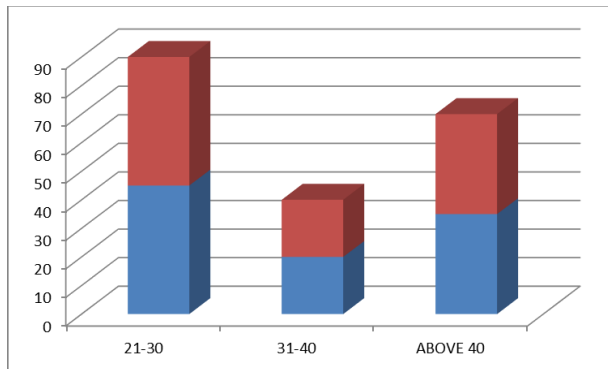
$$\text{Percentage of respondents} = \frac{\text{Number of respondents}}{\text{Total respondents}} \times 100$$

PERCENTAGE ANALYSIS

Age of The Respondents

S.NO	AGE	TOTAL	PERCENTAGE
1	21-30	45	45
2	31-40	20	20
3	ABOVE 40	35	35
	TOTAL	100	100

CHART – AGE



INTERPERTATION

The above table shows that 45 percent are 21-30, 20 percent are from 31-40, 35 percent are Above 40.

V. SUGGESTIONS FOR IMPROVING ERGONOMIC FACTORS

- The working environment deals with the factors such as dust, sound and temperature. It should be properly maintained by providing disposable type safety masks.
- The asbestos roof causes high temperature rise in the production department along with the heat emission from the machines causes continuous yarn breakage in hot days.
- The working time includes two factors i.e. the wage system and the shift.
- The long hour shift will cause back pain and other health issues, so the reduction of the shift from 12 hour to 10 hours will be more effective.
- The working condition of machines also has a great effect on the performance of the worker. The sizing machine has a serious problem of lack of tension in regular intervals of time this will cause the weakening of the cotton yarn.
- Yarn Breakage cannot be avoided but it can be controlled to a certain limit, by using reliable machines and providing sufficient temperature controlling devices.
- The sprinkler is not in working condition, so replace or repair the sprinkler this will reduce the yarn breakage to an extent.

- The company should strictly follow the rules regarding safety that is the compulsory use of the safety measures

VI. CONCLUSION

In this analysis the study of ergonomics is taken to identify the problems faced by the employee in the organization. The ergonomic study in the production department is conducted by a survey and by the data collection. So, the company should take care about the ergonomic factors otherwise it will cause bad results from the employees that will results in low productivity and non-achievement of the target. Modern machines and equipment’s are to be employed in the industry to achieve higher goals and to sustain in the competing world. To increase the productivity each organization should identify the ergonomically issues and the employer should take steps to rectify those issues.

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