Psychosocial productivity: the measurement of healthy working environment in the case of technology upgradation in integrated manufacturing stations

Jisnu Basu[1] Bijan Sarkar[2] and Ardhendu Bhattacharyya[3]

The Demand-Control-Support model of psychological job stress is one of the popular methods for analyzing motivational factors in a working environment. Job content questionnaires (JCQ) developed by Robert Karasek (1998) is a simple but effective tool to measure the psychological job demand, job control and support parameters. The present study aims to measure the effect of technology upgradation of the workstation on occupational dynamics. A leading cigarette manufacturing organization in eastern India has been selected for this study. After globalization some factors like fear of unemployment, job obsolesce etc. have crept in as a major contributing job stressors in India. The cigarette making and packaging technology is one of the very rapidly changing fields. This company has upgraded its technology for achieving an average speed of 6500 cigarettes per minutes (CPM) from 3000 CPM. Naturally there has been a drastic change in the man machine interface on the shop floor for the said change in productivity. Decision latitude, psychological stressor and social support have been measured for employees at different hierarchical levels, work experience, education and technological expertise. . The results of psychological demand etc. obtained here are compared with the US national scale. To design a 2^4 factorial analysis tool with double replicates, 32 subjects have been questioned with 16 factor combinations. Psychological job demand is certainly a component of the productivity but it also increases job strain. To establish a healthy workstation in a sustainable industry it is necessary to find an optimal point between productivity and psychological stain. A new dimension less scale "psychosocial productivity" has been formulated to provide the exact requirements of a workstation designer. The relative position of two workstations or advancement/ degradation of one particular workstation (a particular man-machine-organization combination) in the case of technology upgradation can be evaluated directly from this parameter.

Key words: Working environment, Psychological productivity, Manufacturing, Productivity technology

[1] Saha Institute of Nuclear Physics, 1/AF, Bidhannagar, Kolkata-700064, India
[2] Prod. Engg. Dept., Jadavpur University, Kolkata- 700032 , India
[3] Mech. Engg. Dept. Jadavpur University, Kolkata- 700032, India