Quality is in the eye of the beholder

Quality may be in the eye of the beholder but in order to build a successful product, managers must define what the beholder (customer) expects and how to produce the product efficiently. The quality movement has successfully applied the principles of quality management to their workplaces according to pioneers such as Deming and his '14 points for implementing quality'. Deming spoke of adapting a systems approach to quality management that seeks to optimize the overall system in which management has the responsibility for achieving optimal performance. This performance has an inherent variation that can be measured using statistical methods, systems analysis and other tools. Machine and equipment performance is not the only variable in the workplace system. Just as important is human performance. Workers who are under performing add variation to the system. The knowledge of people, their capabilities and limitations belong to a broad discipline called ergonomics.

Ergonomics is a field of knowledge about human characteristics, workstation design and cognitive psychology. The goals of ergonomics are to optimize human performance such as improved operator comfort and efficiency, decrease fatigue and reduce human error. In the application of ergonomics to the problem of work related musculoskeletal injuries (sprains and strains), practitioners have developed numerous tools to measure human performance. These tools could be incorporated into the quality improvement's 'tool box'. Furthermore, ergonomic literature is reporting quality and efficiency improvements along with injury risk reduction. There is an ergonomic saying that, 'if your hands are hurting at the end of the day, will you be doing a productive and good quality job?' Upon closer examination of ergonomic knowledge there are many similarities to quality initiatives:

1) A macrorganizational view of the workplace and its systems before any single workstation improvement is studied.
2) Failures, injuries, significant variations are not the fault of the employees but a failure of the work process.
3) Measurement based tools are used to analyze an operation.
4) The appropriate use of new technology may be warranted; however, small incremental improvements are preferred.
5) Both favour small multi-functional teams to lead the change process.

Quality initiatives can learn from ergonomics in the areas of man-machine interaction. The tools used to study the interaction and the knowledge gained in improving human performance can be of great value to a quality initiative. Some examples include:

- usability testing of computer software; the outcome was less errors and quicker learning times for operators.
- Identifying low back injuries and studying the task concluded that the risk would be lowered if the amount of rework could be reduced by 20%.
- On an assembly line, improvements to workstation design and the purchase of appropriate tools for the task resulted in less discomfort in the hands and a 3% increase in the yield of the product.

- A study was conducted where all tasks in a company were evaluated for risk of musculoskeletal injuries. These areas were then compared to production bottlenecks and measures of poor quality. The results were 98% similar.

Ergonomics and quality are two sides of the same coin when there is a human performance issue. A truly quality workplace can be achieved if all aspects of work are incorporated into the quality initiative, and ergonomics is one of them.

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