

Setting Line Speeds or Production Targets

'HUMAN FACTORS' ISSUES

When setting line speeds or production targets, managers need to take account of the major 'human factors' that affect both productivity and employee well-being.

Human performance – and therefore production performance – is affected by the **mental and physical demands placed on people**, and by their **abilities and motivation to cope with these demands**. Below are some basic facts about how performance is affected. Following this is a checklist of factors that affect work rates.

Some Basic Facts

MANAGING MENTAL WORK DEMANDS

Basic facts:

- People need to work more slowly when work is mentally complex or demanding.
- People need to concentrate harder when work is mentally complex or demanding.
- Maintaining concentration on mentally complex or demanding work is fatiguing.
- It is more difficult to maintain concentration or alertness when work is monotonous or repetitive, which makes this kind of work particularly fatiguing
- **When people are mentally fatigued, or when they are bored, they tend to work more slowly and/or less accurately.**

MANAGING PHYSICAL WORK DEMANDS

Basic facts:

- People need to exert more physical effort when work is physically heavy
- Maintaining physical effort is fatiguing.
- Maintaining fixed postures or limb positions (e.g. when working at a keyboard or in many assembly tasks) is physically fatiguing
- **People tend to work less effectively when they are physically fatigued.**

MANAGING EMPLOYEE MOTIVATION

Basic facts:

- Performance – both speed and quality – varies according to how much effort people make
- People who are satisfied with their job are likely to exert more effort than those who are not
- Jobs are more satisfying when employees:
 - have reasonable autonomy and control over their work,
 - are clear about what is expected of them,
 - have sufficient variety and challenge in their work, and
 - receive adequate feedback about their performance and related outcomes.

WORK SHOULD BE DESIGNED SO THAT:

- ✘ mental demands are neither too high *nor too low* for employees' mental abilities
- ✘ boredom is minimised
- ✘ the need for fixed or awkward postures is minimised
- ✘ physical demands are neither too high nor too low for employees' physical abilities
- ✘ rest breaks are sufficiently frequent:
 - for concentration to be maintained
 - to prevent the development of significant physical discomfort by the end of the day

- ✘ total working hours are not excessive (more than 50-55 hours/week)
- ✘ work has some variety and opportunity for employees to use and develop skills
- ✘ employees have autonomy and control over their own work to the maximum extent that is reasonable
- ✘ employees are clear about their job requirements and receive adequate performance feedback.

Factors Affecting Work Rates

To enable people to work to their full capacity, design work to minimise the number of 'yes' responses to the following questions.

JOB DESIGN and ENVIRONMENT

Do operators often:

- ◇ perform the same task for long periods without a break?
- ◇ work extended shifts, or long hours per week/month?
- ◇ work night shifts?
- ◇ perform this task only occasionally?
- ◇ have to deal with interruptions?
- ◇ feel unable to take a break when they need to?
- ◇ feel unclear about the standard or quality of work expected of them?
- ◇ feel that they have little control over how their work is done?
- ◇ feel that their efforts are unappreciated by supervisors or management?
- ◇ feel that there is conflict within the work group, or a lack of team work?
- ◇ feel uncomfortably hot?
- ◇ feel exposed to risk of injury?
- ◇ feel that making an error might have significant consequences?
- ◇ feel that production targets are unrealistic?

PLANT, MATERIALS, PROCESS

Often:

- ◇ plant or machinery is unreliable or requires frequent maintenance?
- ◇ there are delays in supply of necessary materials, information or other resources?
- ◇ quality of materials processed is poor or variable?
- ◇ materials are poorly organised (e.g. not pre-sorted or otherwise prepared)?

WORKSTATION

There are often:

- ◇ cluttered areas with a lack of space to move around easily?
- ◇ tools or equipment that are awkward or heavy for some operators?
- ◇ working heights or furniture that don't fit people's physical size?

TYPE OF WORK

The work often requires:

- ◇ looking or listening carefully?
- ◇ complex choices or decisions?
- ◇ intense concentration?
- ◇ precise, accurate movements?
- ◇ care to get things exactly right or to avoid errors?
- ◇ use of significant force?
- ◇ awkward postures?

- ◇ paying attention to other things at the same time?
- ◇ interactions, of varying duration, with other people?

INDIVIDUAL OPERATORS

Some of the people doing the work:

- ◇ are not fully experienced?
- ◇ are not fully trained?
- ◇ have just returned from leave?
- ◇ have an injury or disability that affects their work?
- ◇ are having difficulties coping with personal problems (e.g. with family) ?