Profit With A "Pop" Program

A System for Keeping Manpower As Up To Date as Machine Power

Theodore B. Borecki and Irwin Gray

Machine-power in the typical company is kept at peak operating efficiency through preventive maintenance and carefully calculated equipment replacement programs.

Manpower in many of these same companies is a neglected child and allowed to run down, operate at low efficiency, or just relegated to unplanned management chaos.

Let's see why machine-power gets all the attention by comparing symptoms of degeneration in performance:

Characteristic	*Machine-power*	*Man power*
Quantity	Production-units/day down	Actions untaken, decisions unmade
Quality	Inspection limits exceeded	Trivia and intangibles exceed substance
Cost	Increase in scrap and inputs (fuel, etc.)	Creeping increases in overhead, personnel requirements
Time	Schedule slippage	Sluggishness, management inertia

Theodore B. Borecki

Associate Professor of Industrial Engineering, Pratt Institute. Major industrial experience at Fairchild Camera and Instrument Corp., Section Head Industrial Engineering, and other firms. Consultant to business in wage incentives, operations analysis, work measurement. B.M.E., M. Ad. E.

Irwin Gray

Assistant Professor of Industrial Engineering, Pratt Institute, Brooklyn, New York. Major industrial experience at New York base of Pan American World Airways, Supervisor of Electrical Maintenance Engineering. Consultant to business and professional engineer to the construction industry. Taught at Columbia University as computer operations lecturer. B.E.E., M.B.A., M.S., Ph.D., P.E.

Moral: Manpower degeneration happens, but is not easily measured. Machine-power degeneration precisely pinpointed.

Result: The urge in all of us to work with physical or tangible matters takes charge: Machine-power gets all the attention.

What Makes People Inefficient/Obsolete?

1. Knowledge and experience are obtained on the job and only from the job; which

2. Builds on a narrow historical base—that which happened in this company, this one plant, this job location; resulting in

3. Perpetuating a single approach or way of doing things simply because this one way has been successful in the past; giving rise to

4. Inbreeding of old ideas, attitudes, and systems; and

5. Internal politics squelching "maverick" ideas; as

6. Routine operations, complacency and boredom, dull initiative and unreceptiveness to new ideas; with the result that

7. The people in the organization become inefficient in their jobs and obsolete in terms of dealing with future problems.

Suggestion: A Planned Obsolescence Prevention ("POP") Program

Plan the renewal of existing skills and the introduction of new ones to your labor force on a carefully calculated basis. Set up a program which accomplishes this on an orderly continuous basis—a planned obsolescence prevention program. Setting up such a planned obsolescence prevention program consists of five steps:

Step 1. Determine the desired skills: For each of the activity levels within your labor force—production line, production staff services, first-line supervision, etc.—note the physical, quantitative, human relations skills, etc., that require maintenance (refreshment) and renewal (injection of creative thinking).

Step 2. Match the skills needed to specific subject matter and training techniques appropriate to the type of person under consideration. For example: While general, unsupervised reading activity is a broadening and excellent training activity for upper management, foremen would probably benefit most from specific materials and tight guidance. Each major training technique may be thought of and set up as a "phase" of the renewal program. Typical phases might include:

a. Phase I—Class and conference work.

b. Phase II—Directed individual work.

c. Phase III—Directed outside (off job) activities.

Step 3. Set up a master schedule:

a. Determine the obsolescence time cycle for the activity level under consideration. Keep in mind:

1. New concepts and technology—How fast do these require changes in production methods or managerial processes?

2. The rate of personnel turnover in the positions under examination.

b. Divide each activity level of your plant labor force into effective groups that will be taken through the different phases of the program. Establish an effective group size based on teaching (classroom convenience) and scheduling factors.

c. Determine the number of groups.

$$\text{No. of groups} = \frac{\text{number in activity level}}{\text{effective group size}}$$

d. Establish a time pattern for each training phase. Use or establish blocks of time suitable to the level of person involved, material to be imparted, and

appropriate to the technique of instruction to be used. Schedule the phases of instruction so that particular groups within each employee activity level move through all the phases at least once within the obsolescence time cycle.

e. Use slack periods for individual special occasions such as business shows, special seminars, etc., or just as "vacation" periods.

f. Lay out the time base for your program. The total length of the training cycle is the obsolescence cycle. The required groups and phases are fitted to the cycle so that each group moves in a definite sequence through the subject material to be imparted.

Step 4. Set up an operating schedule:

a. Establish precise times and dates for groups to start and finish different phases. Where appropriate, phases may be overlapped, but beware of, at one extreme, diluting a trainee's efforts or at the other, of stifling an individual's initiative by too "dense" a program.

b. Check for conflicts and seek harmony with the master schedule.

Step 5. Executive program and plan for revisions in phases, time allotments, and material as program experience dictates. Keep the program current!

What are the Advantages of a POP Program?

1. Training costs, budgeted in advance, can be evened out from year to year. No more crash programs, no more resistance to new ideas requiring emergency measures.

2. All pertinent training techniques for each level of program can be scheduled well in advance making it easy to arrange for the type of people you want to administer the training. The program can be varied from cycle to cycle and is inclusive of all applicable methods for the material under consideration and the trainees involved. This avoids monotony for the trainee and innovation is encouraged in keeping the program up to date. Change is a challenge instead of a threat to an established routine!

3. Attendance at special seminars and events falls into a planned program with related reading and follow-up instead of being treated as an isolated event.

4. All the people in a level share in the benefits of the training cycle creating "esprit de corps." There is visible interest on the part of the company in its people, at all times, not just in "spurts."

5. Man-power is renewed with the same care and attention as machine-power.

Example—A POP Program for Foremen in a Medium-Sized Firm (40 Foremen)

Step 1. Determine desired areas of competence: For this example, let us choose three areas—Quantitative, Qualitative, Human Relations.

Step 2. Establish phases appropriate to Step 1 material:

I. Class & Conferences.
II. Individual Work.
  a. Self learner—programmed material.
  b. Books.
  c. Journals.
III. Directed Outside Activities.
  a. Attendance at tools shows.
  b. Appropriate seminars—local societies.
  c. Plant visits—other units of the firm.

Step 3. Set up a master schedule:

a. Note: This is highly variable and a subjective matter for each industry. For most industries, significant changes occur in a three-four year period. Assume a three year obsolescence cycle, for this example.

b. Teaching and supervising a program would probably entail choosing comfortable group sizes of 12 to 15 participants, per phase.

c. Number of groups = 40/13 = 3 groups.

d. & e. Time/phase. Again, this is a highly variable and subjective topic. It is probable that academic considerations for a term's work might apply here and influence the length of a phase in the classroom. For this example, choose phases:

I. Class/Conference, 12 weeks, 2 hours of class per week per year.

II. Directed/Individual work, 12 weeks per year.

III. Directed outside activities, 15 weeks per year.

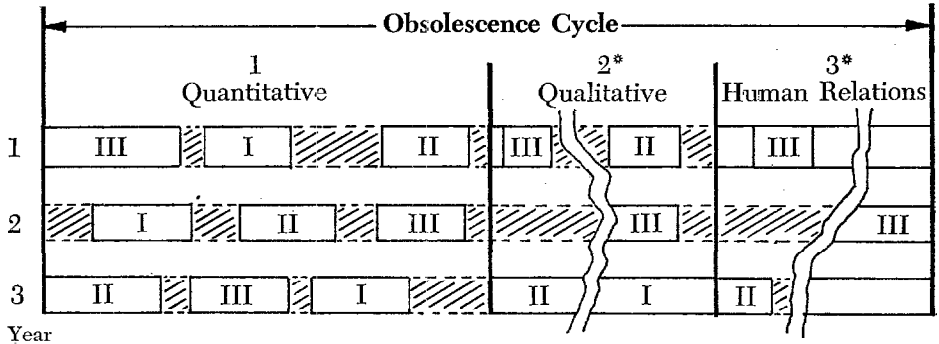
Slack and vacation time amount to 13 weeks per year.

f. See Figure 1.

Step 4. Precise scheduling within the year is at the convenience of the men involved (need for overtime, special projects, etc.), the instructional staff, and the needs of the management concerned.

Step 5. Establish the time for execution of the plan. Preferably, the time is "now."

Figure 1.



Foreman's Training Cycle-Master Schedule

Key:

I Class & Conferences

III Directed Outside Activities

II Individual Work

Slack time (may be used for special events, shows)

Schedule similar to year 1