

MA IInd Year Lecture Notes Online
Semester-IV
Paper-II Specific Resource Management
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Unit-V- Work Simplification

WORK SIMPLIFICATION

Work simplification is making work easier. According to **Nickell and Dorsey**, 'it is the conscious seeking of simplest, easiest and quickest method of doing work.' It aims at accomplishing more work with limited amount of time and energy **(Gross and Crandall)**.

Home making involves various types of activities which are most of the time tedious, monotonous, time consuming and involves various types of skill. Most of the work if done without much skill and under pressure would lead to unhappiness or frustration. To manage the house one should know the best way of doing each household activity. To do the work easily one should know why, how, when, who and where a work should be done.

Dr. Marvin Mundel has given five factors that influence the character of work. They are:

1. Change in hand and body motions

Work can be simplified by using each part of the body properly and economically.

This can be achieved by

1. Keeping body parts in alignment
2. using muscles effectively
3. Doing the work in rhythmic motion
4. Developing skill in work.

2. Change in equipment and work arrangement

Using labor saving devices, planning work surfaces at proper height, depth and width with proper tools and adequate storage space and lighting will improve the efficiency of work.

3. Change in production sequence

When there are a lot of household activities to be accomplished time and energy can be saved by simplifying the work through combining the tasks and eliminating unnecessary steps.

4. Change in finished product.

Simplification of work could be achieved by changing the standards or expectations of the finished product.

5. Change in material

This refers to the change in the raw ingredient to get the same final products.

Work Simplification

Work simplification means thinking about the task and how it could be done differently to save you energy. What do you do? - Whenever you are about to bend or lift - think about it first. Why do you do it? – Is it necessary or can you avoid it e.g. use a trolley instead of carrying shopping; use laundry basket trolley to push washing to and from clothes line; use long handled aids instead of kneeling to garden or clean the floor. Who should do it? – Are you the best person or can someone else do it e.g. shopping; ask family or friends. When should it be done? – Not all in one day but spread over several days. Where is the best place? – Try sitting rather than standing e.g. ironing, potting, cleaning car parts, preparing food. Where to store it? – Commonly used objects are best kept between waist and shoulder height. How can it be done more easily – There are numerous ways to do things which will suit different people e.g. get correct length tool (broom, screwdriver, mop etc); carry with trolleys and wheelbarrows; fitted sheets and continental quilts or duvets; kneel to tuck in sheets and blankets. Whenever you go to do a task, think about the above: What Why Who When Where How questions.

POSITIONING

- Avoid bending at the waist, raising arms over head and general vigorous movements.
- Sit down whenever possible.
- Raise level of work to avoid stooping.
- Do not work too low, kneel if unavoidable.
- Use long handled tools to avoid stooping. PLANNING
- Plan the weeks work, distributing heavy activities on different days.
- Plan each day, allowing sufficient rest periods and distribution of heavy and light activities.
- Plan each activity to cut down unnecessary movement and utilise best positions.

LIFTING TECHNIQUES

- Avoid carrying or lifting heavy articles, or use a trolley.
- Slide rather than lift.
- Keep things at an easy reaching height.
- Do not bend or twist your back.
- Get as close to the object as possible.
- Stand with your feet slightly apart and one in front of the other in the direction you are going.
- Bend with your knees and hips only.
- Keep your arms straight and the object close to your body.

RELAXATION

- Use relaxation techniques throughout the day.

GENERAL

- Avoid exertion directly after meals.
- Guard against poor posture or anything which would cause restriction of the chest.
- Avoid strict routine. Be flexible in your approach to activities. Allow for days when you may feel more tired than usual.

HOUSEWORK

- Plan the week's housework of heavy activities for different days. e.g. washing, electroluxing.
- Alternate heavy and light activities through the day and allow for rests.
- Set weekly and daily realistic goals.
- Let other members of the family or friends help. e.g. meal preparation, shopping.
- Use long handled brooms and squeegee to do the floors.
- Use a kitchen trolley or wagon to carry heavier things from room to room.
- Have beds away from walls and castors on them to make bed-making easier.
- Avoid putting objects at ground level. Place them on the bench, table or chair.
- Use the vacuum cleaner with slow rhythmic movements and keep the attachments in your pocket or bench level. • Carpet sweepers require less effort.
- Dust high surfaces with a long handled duster.

COOKING

- Plan the meal and the cooking method.
- Place ingredients and all food to be prepared on the work bench or table.
- Have articles and food that is used often, at an easy reaching height.
- Keep mixers, jug, toaster etc on the bench.
- Cook roasts in an oven-bag, to save cleaning the oven. Use a little water instead of fat.
- If possible have the stove next to the bench and at the same height, so that you slide pots instead of lifting them.
- Have a small foot-stool or ladder to get to higher shelves. Get onto your knees for things in low cupboards.
- Sit or perch at the bench or table with feet firmly on the floor. Open a cupboard door if necessary for knee space.
- If the stove is not near the bench, load a kitchen trolley with prepared food and take to the stove or oven. Remember to bend knees to put the food in the oven.
- Sit if possible to wash/dry dishes.

LAUNDRY

- Wash smaller quantities or do a wash more often.
- Use a stick to get washing out of the machine or tub.
- When hanging out the washing use a trolley or put the washing basket on a chair to save bending and lifting.
- If plastic pegs are used leave them on the line.
- Fold washing as you take it off the line, as it saves handling it twice, the clothes will then need little or no ironing.
- If buying a washing machine, get the type which loads from the top.
- The best type of clothesline is one, which can be wound up and down
- Have the washing machine and tub placed close together.

IRONING

- Iron as little as possible i.e. not sheets, tea-towels, towels or acrylic clothing.
- Use a steam iron if possible.
- Sit to iron, using a stool the same height as the ironing board or table.

SHOPPING

- Avoid rush hour shopping.
- Use the trolley to carry items.

GARDENING

- Do a little at a time with frequent rests and stretches.
- Weed, fork or dig when the ground is damp.
- Put weeds in a barrow rather than on the ground.
- If possible have a raised garden and use longer handled tools which are now available.

Techniques Of Work Simplification

These Techniques are of two types

- A) Formal Techniques.
- B) Pen & Pencil or informal techniques

A) Formal Techniques consist following as mentioned below.

- 1) Micro-motion Film.
- 2) Cyclograph.
- 3) Memo motion.
- 4) Stop watch technique.

1) Micro-motion Films Analysis:

Micro-motion film analysis is primarily a research technique and applies best to tasks that can be easily filmed.

It was for this kind of analysis that the Gilbreths developed their method of classifying fundamental hand motions into therbligs. Analysis of an activity by means of therbligs results in describing the detailed motions of both hands into 17 categories such as grasp, search, select, hold, and transport empty. A simultaneous

motion chart or simo chart is a right-hand and left hand chart plotted against a time scale and made from micro-motion filming.

Work-simplification techniques have been used by research workers in Home Economics and other fields to improve work methods in homemaking. Motion and time studies have been made of such tasks as food preparation, dishwashing, laundering and ironing, bed making, cleaning and a number of other tasks. Efficient kitchen arrangement, tools, equipment, storage facilities, and correct heights for work surfaces, chairs, and stools have also been studied.

These studies suggest many methods of simplifying homemaking tasks, which may be used or adapted by homemakers in their own homes. They show how motion and time studies may be applied to any work problem in the home. Trying out new work patterns and adjusting them to meet new situations add interest to the work. Family members are also kept on the lookout for other ways to make tasks easier, to lessen fatigue, and to make work a pleasure.

2) **Cyclograph:**

The motion of the hand left and right motion of the fingers, wrist, for arm, upper arm and shoulders is picturized. A kind of bulb is attached or tide to the body part like wrist or upper arm and as the hand moves the light of th bulb will picturize the motion, a graph comes out and the motion can be analyzed and evaluated. After introduced new improved method in the work of task the process of the cyclograph is again repeated and studied.

3) **Memo Motion:**

Memo motion or spaced-shot photography is a tool of time and motion study that analyzes long operations by using a camera. It was developed 1946 by Marvin E. Mundel at Purdue University, who was first to save film material while planning studies on kitchen work.

Mundel published the method in 1947 with several studies in his textbook Systematic Motion and time study.[1] A study showed the following advantages of Memo-Motion in regard to other forms of time and motion study.

- 1) Single operator repetition work.
- 2) Area studies, the study of a group of men or machines.

- 3) Team studies.
- 4) Utilization studies.
- 5) Work measurement.



4) Stop Watch technique:

Time measurement unit- TMU is adapted to study the work its parts and various activity involved. Every second record is maintained using a stop watch the TMU of one second is 0.036 part and 0.0006 part of a minute. This method is useful to improve the working procedure.

B) Pen & Pencil informal Technique:

1) Process Chart:

In this method some signs and symbols are allotted to the movement of the activity.

Sign	Activity
0	Movement from one place to another
O	Standing Still but working with hand/ Operation Done
	Inspection for quantity and quality delay
	Delay in the working pattern
©	Movement and operation done simultaneously.

The Process chart is a step-by-step description of a worker performing a given task in its entirety. It is an over-all investigation and differs from an ordinary description of a worker's activities only in that a few symbols are used to clarify the steps immediately into types. Gross, Crandall and Knoll have adapted some of these symbols from industry in the preparation of a process chart. The small circle indicates that the worker is going somewhere; the large circle indicates that she is standing still but working with her hands; the square indicates that she is checking what she has done; the triangle indicates that nothing is happening; the composite symbol indicates that she is accomplishing something with her hands while walking. Thus, in

charting the setting of a table, each time the worker walks is indicated with the small circle. When her hands alone are working the large circle is used. When she stands still but for example looks over her job to see if it is completed, the square is used. It can be distinguished from delay by the movement or focus of the eyes. The advantage of using the symbols along with the description is that one may quickly count up the number of each type of steps. A composite symbol counts as two activities when summarizing.

2) Operation chart:

Operation chart is made for one activity where different parts of the work are performed in sequence. Operation chart is quite similar to the process chart, but process chart is used to analyze the work in totality, whereas operation chart evaluate the activity of hands and fingers.

Here, small circle represent the movement of the arm and the large circle shows the movement of the fingers. Triangles are used for delay in the arm and finger movement. Both inspection of both the hand movement will be done by the worker.

3) Multiman Chart:

This chart is used by far person members to study a task. Multiman chart is identical to process chart and similar symbols used to represent the activities. Greater stress is laid on avoiding delays and introducing new methods and techniques.

4) Pathway chart:

The plan is use where the layout of the room is specified. This plan is laid on the drawing board and with the help of pins and thread workers position is marked. When the worker moves from one place to another the place is marked by a pin and a thread is wound the pin.