Industrial Managment

Assignment-03

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Ques!: Explain in details the theory of work sampling with the help of examples and its uses.

Ans!: Work sampling is defined as a technique for determining and predicting the total of the propotion of the time consumed by a specified activity. It is dependent upon the observations that have made over a while to record the frequency of the events that are being performed and the happenings in that instant. It is a tool used by employers to determine the time which an employee spend on a specific activity.

The general characteristic of work sampling method are :-

- It require sufficient time to complete the study.
- The cycle time of work sampling is generally lengthy.
- The work-cycle is non-repetitive.
- It is feasible for the work-sampling method to study multiple worker at a time instead of one single worker.

The applications of work-sampling are :-

Work sampling enable a fair share of job distribution amongst the workforce.

- It is applied to find an estimate about delay time that are unavoida ble for deciding about the delay allowance.
- The data that is available from the work sampling method has proved a great help of production planning.
- A work sampling method is a helpful tool for the administration as it helps in evaluating the efficiency level of various department in organization.
- The work sampling assist in the management in an organisation to find all the data and information of idle time and its cause.

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* Procedure for Work sampling :-

① Identify the specific activities or workers that are the main purpose for the study.

② Determine the no. of observation to be made :-

(i) Determine the confidence level.

(ii) Set the accuracy level.

(iii) Apply the following formula –

$$N = \frac{z^2 p(1-p)}{E^2}$$

where, E = absolute error,
p = idle percentage
z = coefficient of level
q = percentage of activity.

③ Determine the time to make observation.

④ At two or three interval during the study period, recompute the require sample size by using the data collected so far.

⑤ Convert the work sampling observation into propotion and calculate desire standard time estimate.

Example :- In a work sampling study, a mechanic was found to be idle for 20% of time. Find out the no. of observation needed to conform to the above fig. with a confidence level of 95% and a relative error level by 5%

$$\text{No. of observation require } (N) = \frac{z^2 p(1-p)}{E^2}$$

$$N = \frac{(1.96)^2 (0.2)(0.8)}{(0.05 \times 0.2)^2} = 6100 .$$

$$\therefore \boxed{N = 6100 \text{ observation}}$$

Ques2. Explain the various benifits of work study. Also explain how it is carried out in organization. (03)

Ans2. Benifits of work study are —

(1) It helps to achieve the smooth production flow with minimum interruption.

(2) It helps to reduce the cost of the product by eliminating waste and unnecessary operation.

(3) Reduction in rejection and scrap and higher utilization of resource of organisation.

(4) Improve upon the existing process or methods and helps in standardization and simplification.

(5) Helps to establish the standard time for an operation or job which has got application in manpower planning, production planning.

Steps :-

(1) Identify and select the job or process to be studied.

(2) Use direct observation for recording everything that happens, using the most efficient recording techniques. Ensure that the data are in the most convinent form for analysis.

(3) Data and facts obtained in previous step are to be examined and analysed critically challange everything that is done.

(4) Devdop the most economical method under privailing curicums.

(5) Measure the quantity of work involve in the method defined by using appropriate method of measurment. Calculate standard time for doing it by adding rest allowance.

(6) Define the best method and train personal required time.

(7) Install the new method and train personal so that their operation conform to the agreed standard practice.

Ques3. How involvment of workers union affect the work study in an organization? (04)

Ans3. (1) Workers resist the work study which might lead to setting higher job standard which may reduce opportunities for bond.

(2) Workers may not like criticism implied in a change that the present work method is inadequate.

(3) Workers may resist change because they do not want to take trouble in learning new things.

(4) Worker may feel that change being introduce will benefit the organization or the employer rather than themselve.

(5) Worker may resist a change because they oppose the people who sponsor & implement the change if they are stranger to them.

Ques4. Differentiate between method study and time study.

Ans4.

Method study	Time study.
(1) It involves the observation of the movement of men, machine, material and supplies to find out the wasteful action & eliminate them.	(1) It is one of the technique of scientific managment which involve observation and recording of time taken in performing a task
(2) Tracking of the time consume in carrying each part of the operation.	(2) Ascertainment of total movement of workers while performing a task.
(3) To reduce wastage of time & energy in unnecessary movement.	(3) To identify the standard time required to peform a task.
(4) Camera is used to do this	(4) Stopwatch is used in this technique.
(5) Minimization of movement of workers.	(5) Increase in productivity of labour.